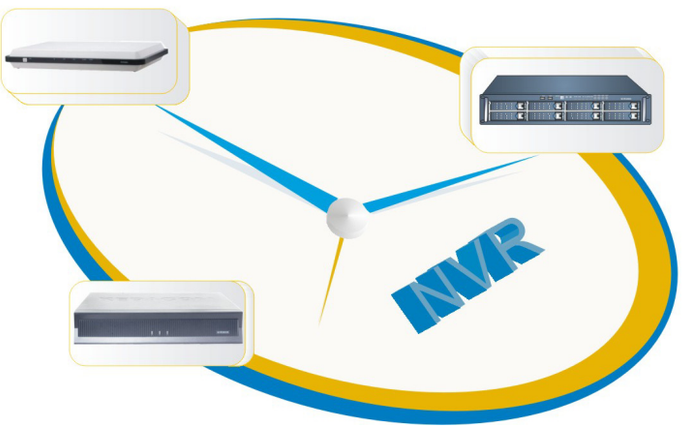
NVR Administrator Guide

V4. 0



Preface

Version

Software version: NVR4.02

About This Manual

Descriptor	Chapter Number
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How to install NVR?	Chapter 2
Use it	Chapter 3~7
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Reset and Update	Chapter 9
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Related Manuals

NVR User Manual/NVR Quick Reference

NVR2820L Quick Reference

KDM201-D01H User Manual

KDM201S Multi-port Encoder Quick Reference

Lithium battery safety

A CR2032 Lithium battery is used in the NVR, please confirm the type to avoid bombing when replaced. Don't throw it into fire or garbage, you should ask relative institutions for nearest recycle bin.

We try to insure the information is correct and the document will update with the software without notice, please ask for your provider to access the document up to date.

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1 Overview

The document is appropriate for NVR series and KDM201S, and the NVR mentioned refers to all NVR models and KDM201S except where otherwise indicated.

NVR is Network Video Recorder. It works together with network cameras and offers a comprehensive surveillance solutions for detecting video motion, reporting alarms, live video viewing, recording, replay, and camera control remotely.

KDM201S is a convergence multi-port encoder with storage accessed either by camera or by IP Camera, and it offers surveillance solutions as the same with NVR series.

The document describes NVR2820L, NVR2820, NVR2820E, NVR2860 and KDM201S with focus on the installation and configuration. For other operations, refer to the ***NVR User Manual***.

1.1 NVR Model

The NVR models are quite different at appearance, interface, storage and video output. For more details, refer to “Technical Specifications” in subsequent chapter.

Multiple NVR models are involved based on the number of surveillance sites:

Appearance	Models
	NVR2820L
	NVR2820-9 NVR2820-16 NVR2820-4D
	NVR2820E-9 NVR2820E-16 NVR2820E-9D NVR2820E-16D
	NVR2860-32D NVR2860-48D NVR2860-64D

1.2 KDM201S

KDM201S is a convergence multi-port encoder, together with network cameras or cameras, offers a comprehensive surveillance solution for video encoding, decoding, storage, video display, and control, which can either organize network separately or register to surveillance platform.

Figure 1-1 KDM201S

1.3 Main Features

The NVR and KDM201S surveillance system run by means of establishing a dedicated surveillance network or sharing with the service network, and the NVR Station help control surveillance system through IP network. The typical network application is as shown in following figure.

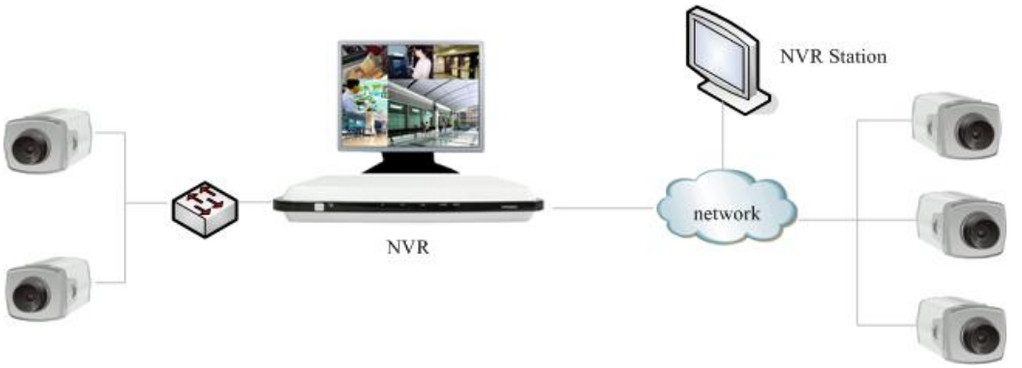


Figure 1-2 Typical Networking

Live video view

1） multi-screen live view at the same time

2） multiple layout schemes

3） camera sequence and layout scheme sequence

4） PTZ control when viewing live video

Voice call

1） voice call and voice record ， point to point, or broadcast to all sites

2） volume control, silent and mute

Recording and playback

1） triggered recording by: manual, schedule and alarm

2） Record management policy: including overwrite and backup policy

3） Records Management: including replay, query, backup, and delete

4） Records Replay: multi-video replay, synchronous replay and progress control

Storage management

1） Auto search and find the disk (built in or USB);

2） Manage the disk: make disk partition, format and record

ANR

Auto network replenishment, include records, snapshots and alarm logs, all of which can be restore to the NVR when the network break down.

Management

1） User management, Log management, and storage management

2） Parameter setting: setting NVR parameters

3） Video unit management: adding, deletion and parameter configuration.

4） Version upgrade: by NVR Station, COM port and U disk

Alarm

1） Trigger alarm by alarm input (such as local alarm input, video motion detection, video loss), and set the action to take , including buzzer sound, alarm output, recording, snapshot, PTZ rotation to presets and caption) .

2） Alarm management: management of surveillance point and NVR alarms, event linkage policy settings and alarm query

3） Alarm linkage: set the actions when an alarm occurs

Networking

1） Automatic networking

2） LAN, public network and hybrid network

3） NAT traversal and Socks5 proxy

4） Support different network providers

TV Wall

1） Camera sequence show on TV

2） maximum of 64 decoder(NVR2860) units to form a TV wall

3） 16 TV wall schemes

Control mode

1） independent control by remote control and USB mouse

2） NVR control by NVR Station

NVR Station

1） View simultaneous multiple videos, of the same or different NVR.

2） Records management

3） Video unit management

4） alarm management

5） NVR record and snapshot

6） A number of NVR management (16 at most)

7） multi-records replay synchronous of different NVR

8） TV wall configuration

9） Electric map function

Security

Perfect security solutions: user password, password attempt forbidden, IP filtering, user login encryption

Register to a surveillance platform

Register to KDM SP2 or KDM platform system

Other

1） Support SDK

2） Support Onvif encode device

1.4 NVR Panels

1.4.1 NVR2820L Front Panel

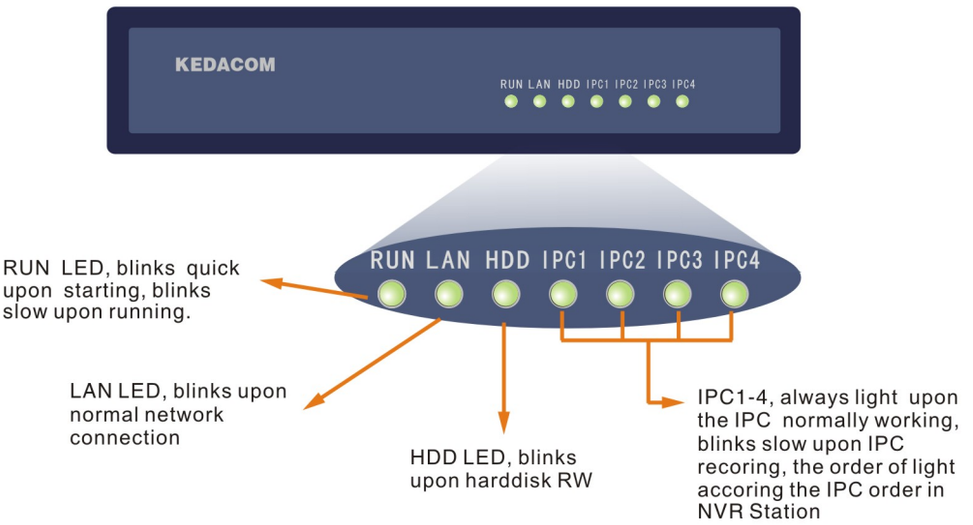

KEDACOM
RUN LAN HDD IPC1 IPC2 IPC3 IPC4
RUN LED, blinks quick upon starting, blinks slow upon running.
LAN LED, blinks upon normal network connection
HDD LED, blinks upon harddisk RW
IPC1-4, always light upon the IPC normally working, blinks slow upon IPC recoring, the order of light accoring the IPC order in NVR Station

Figure 1-3 Front Panel of NVR2820L

1.4.2 NVR2820 Front Panel

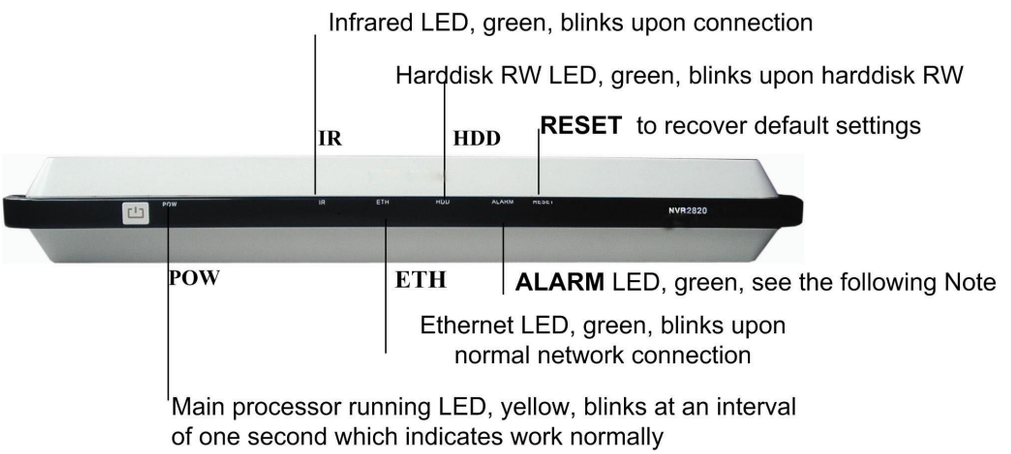

Infrared LED, green, blinks upon connection
Harddisk RW LED, green, blinks upon harddisk RW
IR
HDD
RESET to recover default settings
POW
ETH
ALARM LED, green, see the following Note
Ethernet LED, green, blinks upon normal network connection
Main processor running LED, yellow, blinks at an interval of one second which indicates work normally
NVR2820

Figure 1-4 Front Panel of NVR2820

1.4.3 NVR2820E Front Panel

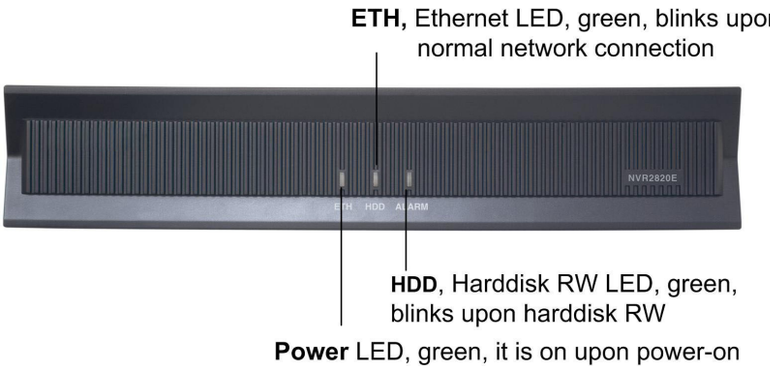

ETH, Ethernet LED, green, blinks upon normal network connection
NVR2820E
ETH HDD ALARM
HDD, Harddisk RW LED, green, blinks upon harddisk RW
Power LED, green, it is on upon power-on

Figure 1-5 Front Panel of NVR2820E

1.4.4 NVR2860 Front Panel

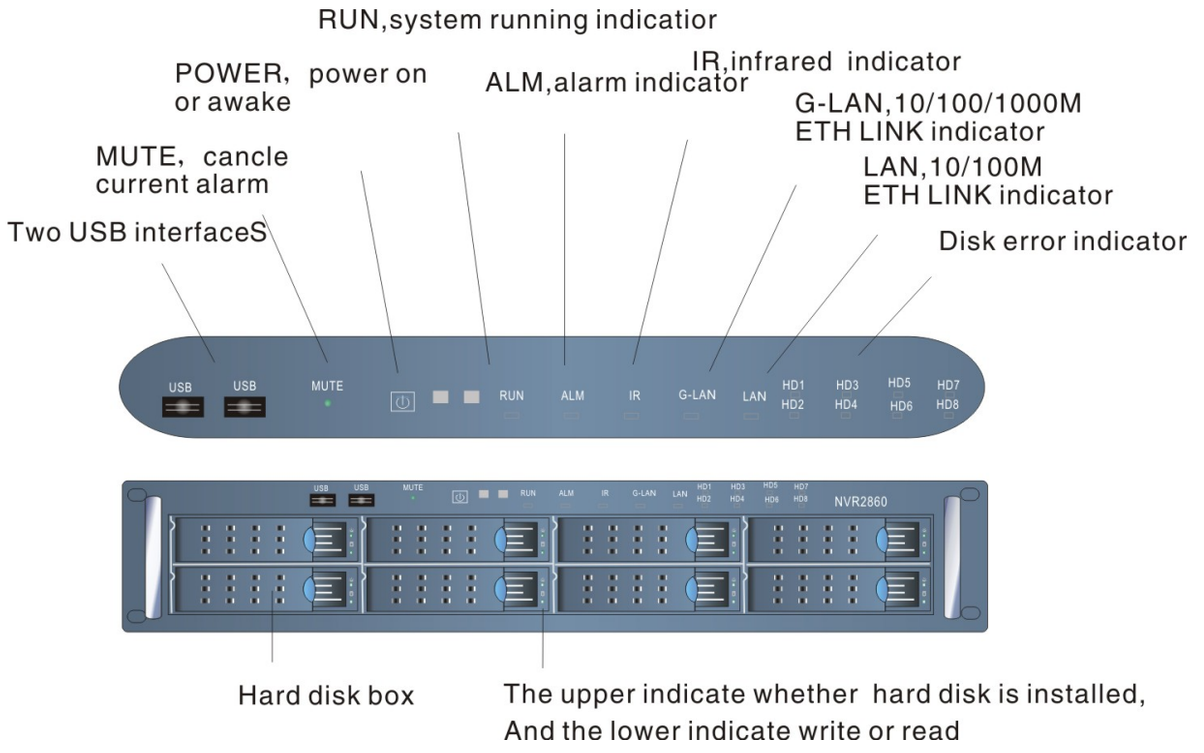


Figure 1-6 Front Panel of NVR2860

Notice: The ALARM LED blinks according to the alarm settings. Please refer to System Linkage in Chapter 5 of NVR User Manual.

1.4.5 NVR2820L Rear Panel

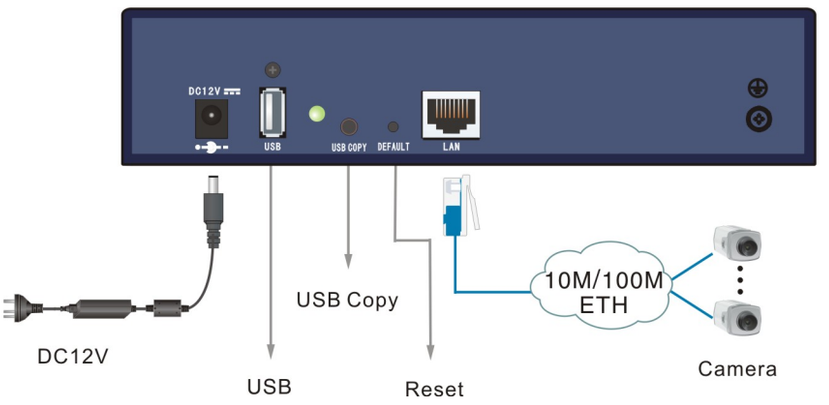


Figure 1-7 Rear Panel of NVR2820L

1.4.6 NVR2820 Rear Panel

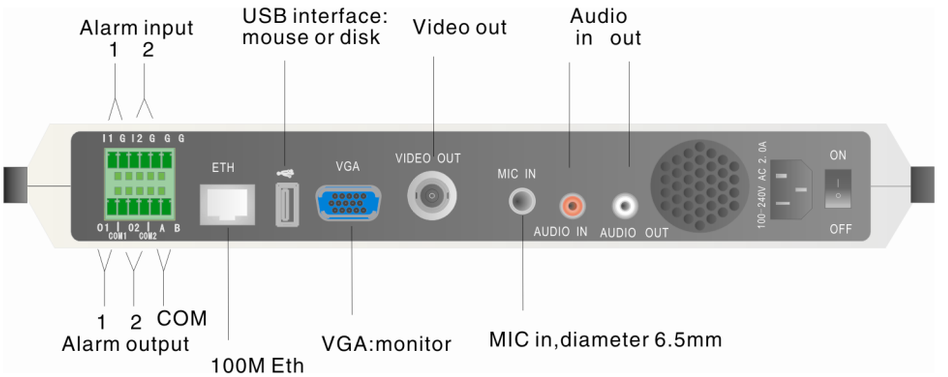


Figure 1-8 Rear Panel of NVR2820

1.4.7 NVR2820E Rear Panel

NVR2820E rear panel is similar with NVR2820, the following show the differences.

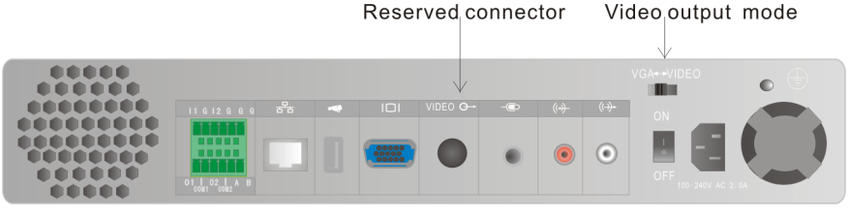


Figure 1-9 Rear Panel of NVR2820E-9, -16

Video Output mode: if the DIP switch is set to VGA, video output through the VGA interface; if set to VIDEO, output through the TV interface. Select PAL or NTSL from the configuration interface.

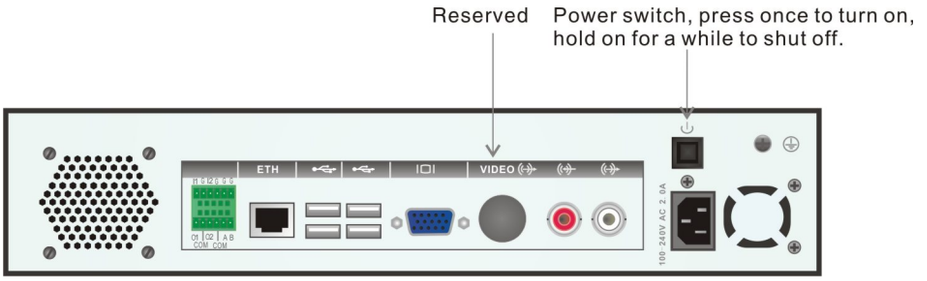


Figure 1-10 Rear Panel of NVR2820E-9D, 16D

1.4.8 NVR2860 Rear Panel

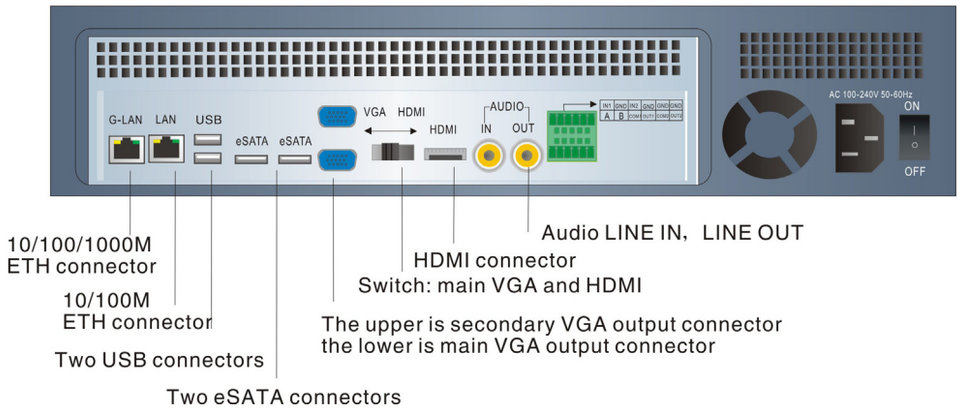


Figure 1-11 Rear Panel of NVR2860

1.5 KDM201S Panels

KDM201S has eight boxes for hard disks in the front panel, and with eight slots in the rear panel for inserting encoder or decoder panels.

1.5.1 KDM201S Front Panel

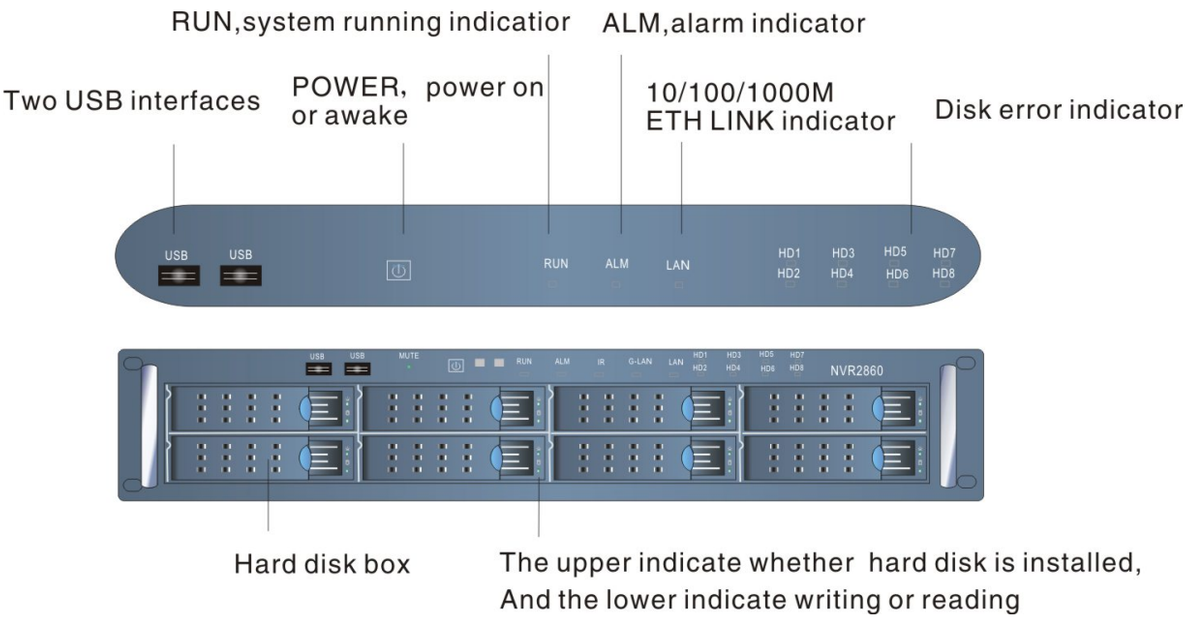
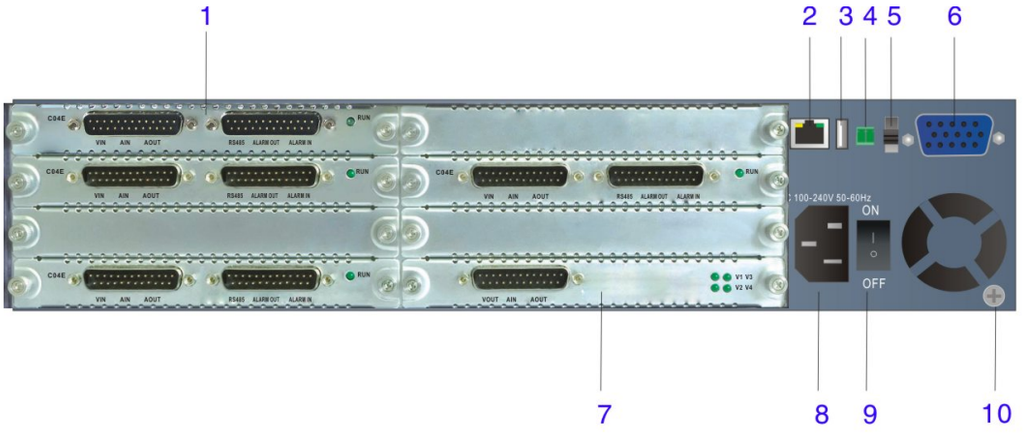


Figure 1-12 Front Panel of KDM201S

1.5.2 KDM201S Rear Panel

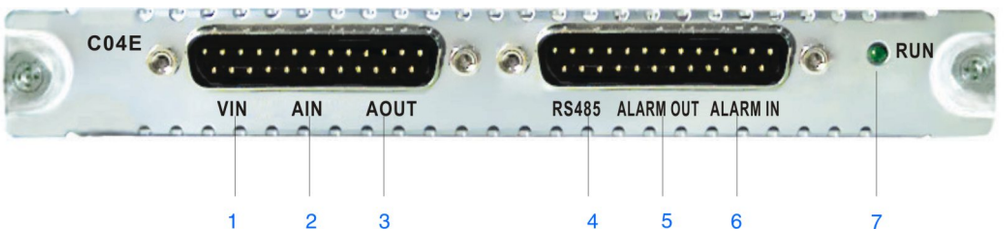


1 Encoder 2 10/100/1000M ETH connector 3 USB 4 RS485 5 VLAN dip
6 VGA 7 Decoder 8 Power connector 9 Power switch 10 Ground

Figure 1-13 Rear Panel of KDM201S

If the VLAN dip is ON, all the modules can managed by the NVR; otherwise, they could be done by other software in the network.

1.5.3 KDM201S-C04E Encoder module



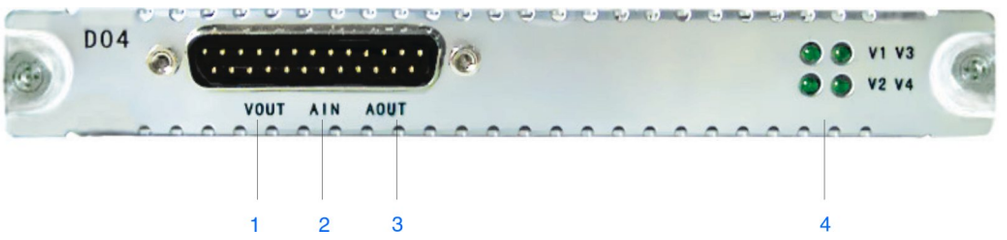
Connect the interfaces with DB25 converter:

1, 4*BNC video in　　2, 4*RCA audio in　　3, 4*RCA audio out　　4, 4*RS485

5, 1*alarm out (switch)　　6, 4*alarm in (switch)　　7, running indicator

Model	KDM201S-C04E
Video Interface	4×BNC
Video Encoder	H.264
Resolution	D1、CIF、QCIF，DUAL STREAM
Frame Rate	1～25fps
Bit Rate	64Kbps～2Mbps
Audio In	4×RCA
Audio Out	4×RCA
Audio Protocol	ADPCM
Alarm In	4×SWITCH
Alarm Out	1×SWITCH
Control	4×RS485

1.5.4 KDM201S-D04 Decoder module

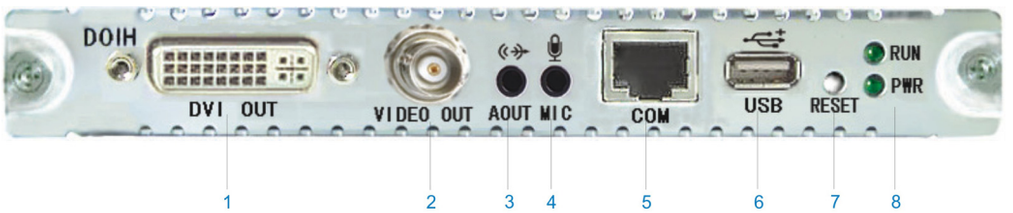


Connect the interfaces with DB25 converter:

1, 4*BNC video out 2, 1*RCA audio in 3, 1*RCA audio out 4, Decoding indicator

Model	KDM201-D04
Video Interface	4×BNC
Video Decode	H.264、MPEG4
Resolution	D1、2CIF、CIF
Frame Rate	1～25 fps
Bit Rate	64Kbps～2Mbps
Audio In	1×RCA
Audio Out	1×RCA
Audio Protocol	G.711、ADPCM

1.5.5 KDM201-D01H HD Decoder module



1、DVI video out 2、BNC video out 3、3.5mm audio line out 4、3.5mm MIC audio out

5、RS232 6、USB 7、Reset 8、Decoding indicator

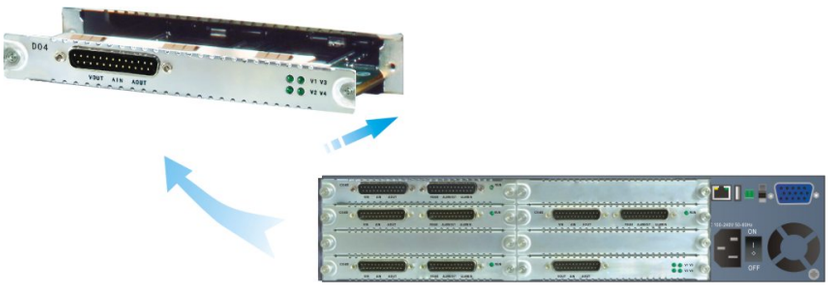
Please configure the D01H parameters in Client——IPCCtrl.

The detail parameters of D01H and the user manual of IPCCtrl, please refer to KDM201-D01H User Manual and IPCCtrl Help.

1.5.6 Inserting a module

KDM201S has eight slots at the rear panel which is used for inserting modules, such as encoder and decoder.

Clear the dusty on the stand before inserting a module, and take out the encoder or decoder module from the anti-static package, then check the name on the module to confirm it is coordinate with the label on the package.



Insert a module:

Push the module along the rail until it is blocked.

Fix the two screws besides the module.

Loosen the screws to take out the module.

Notice: Avoid touching the circuit and other components on the module while inserting the module.

2 NVR Installation Guide

The NVR must be put in a dry and well-ventilated environment with good dustproof, anti-interference and lightning-protection capabilities.

2.1 Working Environment

Placement	Place on a horizontal table or mounted on a rack.
Power	Working voltage: 100V – 240V, frequency: 50 Hz – 60 Hz.
Alarm Input/Output	Alarm input: switch Alarm output: switch, normally open Please pay attention to the type of the alarm input device. Refer to Chapter 6 for details.
Temperature	0℃～60℃
Humidity	10%～85%（non-condensing）
Altitude	-60～5000m

2.2 Installation steps

Following this flow to install the NVR surveillance system:

Step1	Preparation components	Section 0 describes necessary components, including compulsory and optional units.
Step 2	Install hard disk	Install the hard disk to store records.
Step3	Connect cables	Section 2.7, connect cables necessary.
Step4	configure network	Section chapter 3, set the network parameters according the reality.
Step 5	Manage the video unit	Section chapter 4，add device, modify, set parameters, etc. Please refer to chapter 5 for disk management.
Step6	NVR Station access	See chapter 7 for NVR Station.

2.3 Necessary Device Components

A user who buys a NVR device will have the following devices and components:

Icon	Name	Remarks
	NVR	Network Video Recorder
	Remote control	Conducts all operations related to the surveillance system (applicable to NVR2820 and NVR2860)
	Audio/video cable	Used for connecting audio/video unit
	Network cable	Used for connecting NVR and network
	Mouse	USB mouse
	Green terminal	Two 6-pin and one 2-pin terminals, to connect peripheral device.
	Power cable	For connecting NVR and power supply
	SATA cable	For connecting SATA hard disk
	CD	Including: Software and user manuals
	User manual	NVR Quick Reference, NVR user Manual

The above devices are not enough for building a complete surveillance system. Based on the actual needs, you have to prepare some additional devices, such as:

Icon	Name	Remarks
	Video display device	Monitor, display or TV wall, at least one must be selected
	Video acquisition and processing device	Combination of camera and encoder adapter or IPC
	Surveillance keyboard	Optional, it can completely operate all functions.
	Storage device	Optional, hard disk, or USB disk array
	Rewriting device	Optional, USB DVD Rewriter
	USB HUB	If multiple USB devices are to be connected at the same time, the HUB can be used to expand the number of USB interfaces. ZK-033 is recommended.
	Audio device	Optional, audio in/out device: acoustics, microphone or sound pickup
	Alarm device	Optional, alarm input/output device: smoker sensor, infrared probe, alarm ring, and so on.

2.4 Installing Built-in Hard disk

NVR2820L supports one built-in SATA hard disk.

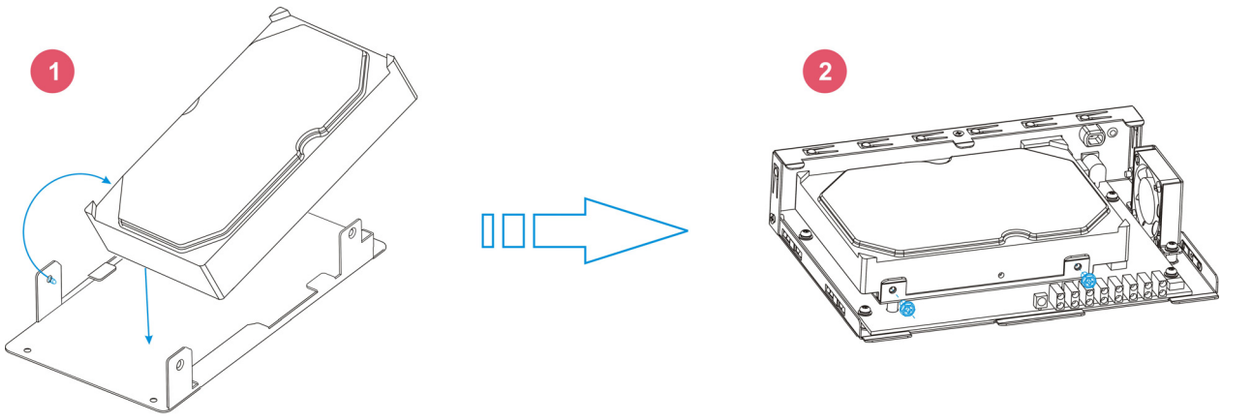

1
2
a. Open the Cover;
b. Insert the hard disk to the hard disk stand , then tighten the screw in the back of hard disk to the stand.
a. Tighten the screw in the other side of hard disk and connect the power cord and data wire
b. Then close the cover and tighten the screw in cover.

Figure 2-1 Installing Hard disk for NVR2820L

Notice: If use the Seagate Barracuda LPTM 2TB hard disk, before the above steps, you need use the Jumper block, the details as following.

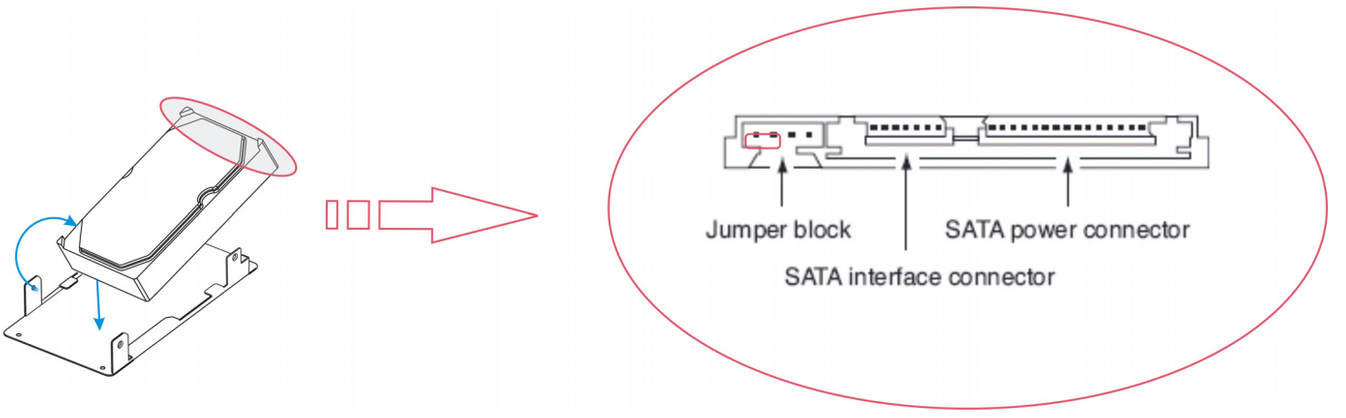


Figure 2-2 Installing Jumper block in Hard disk for NVR2820L

NVR2820 supports one built-in IDE hard disk.

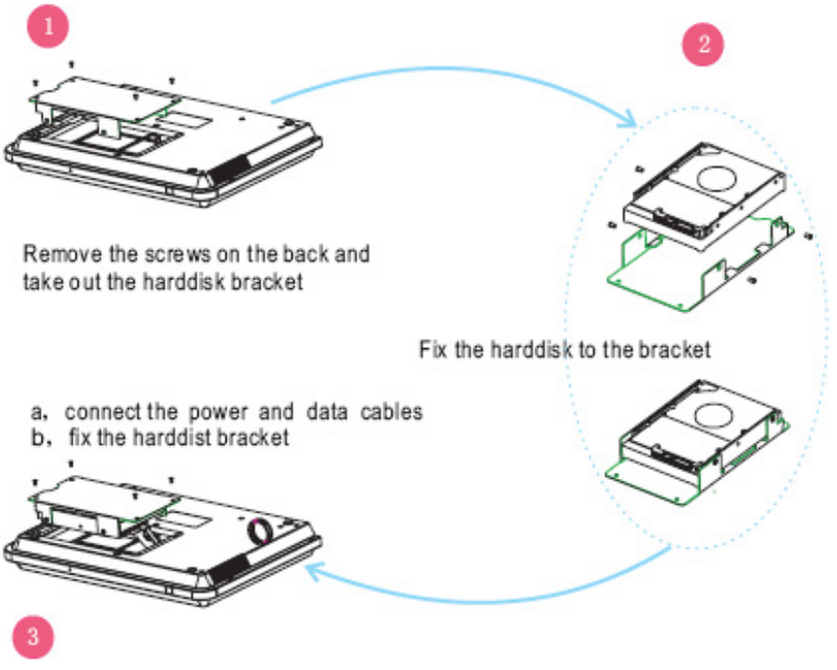

1
2
Remove the screws on the back and
take out the harddisk bracket
Fix the harddisk to the bracket
a. connect the power and data cables
b. fix the harddist bracket
3

Figure 2-3 Installing Hard disk for NVR2820

The NVR2820E supports four or eight pieces of built-in SATA hard disks.

The installing method of supported four disks,

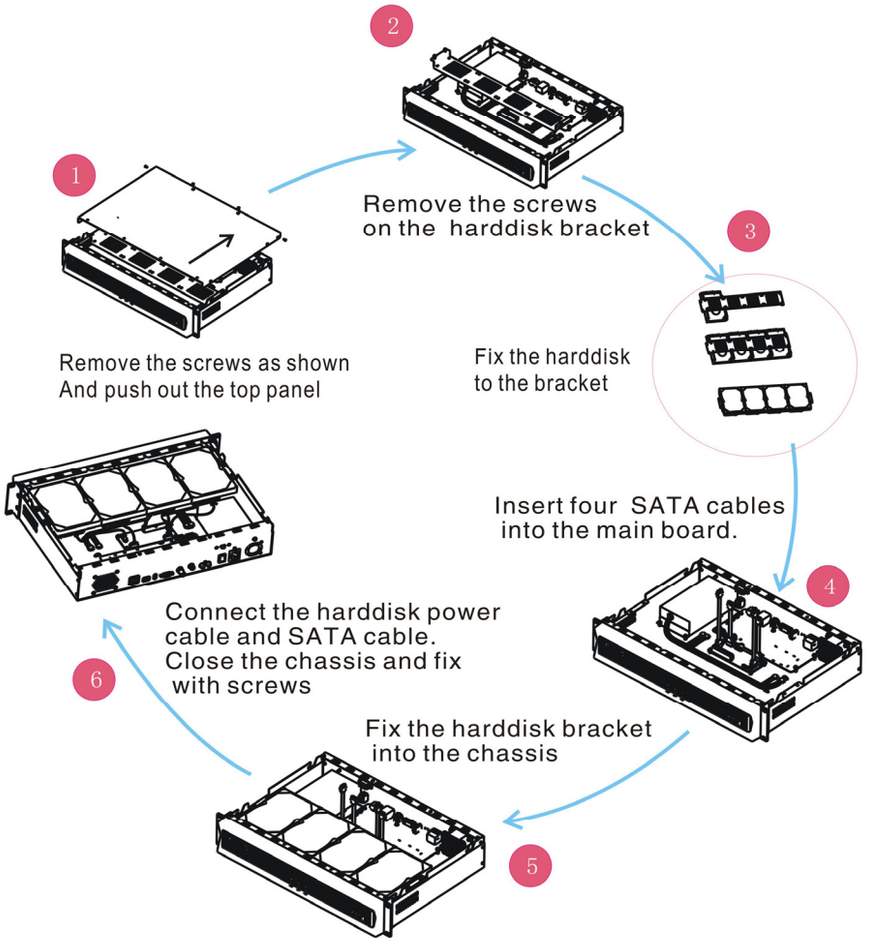
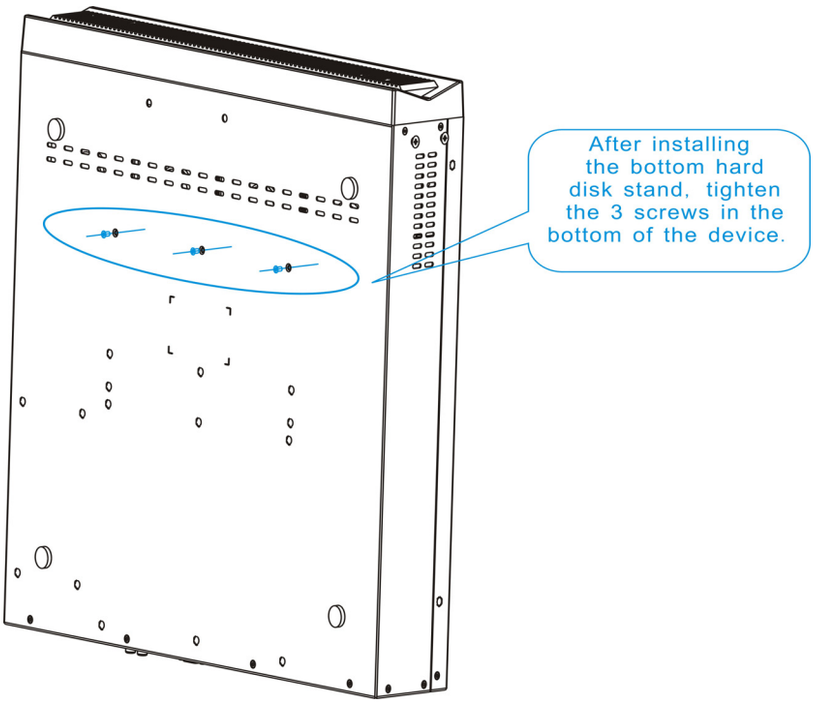


Figure 2-4 Installing Hard disk for NVR2820E

The installing method of NVR2820E which support eight disks is the same as above steps, but the hard disk stand has two layer, you need tighten the 3 screws which in the bottom stand, the detail as the following figure.



The NVR2860 and KDM201S support eight SATA hard disks.

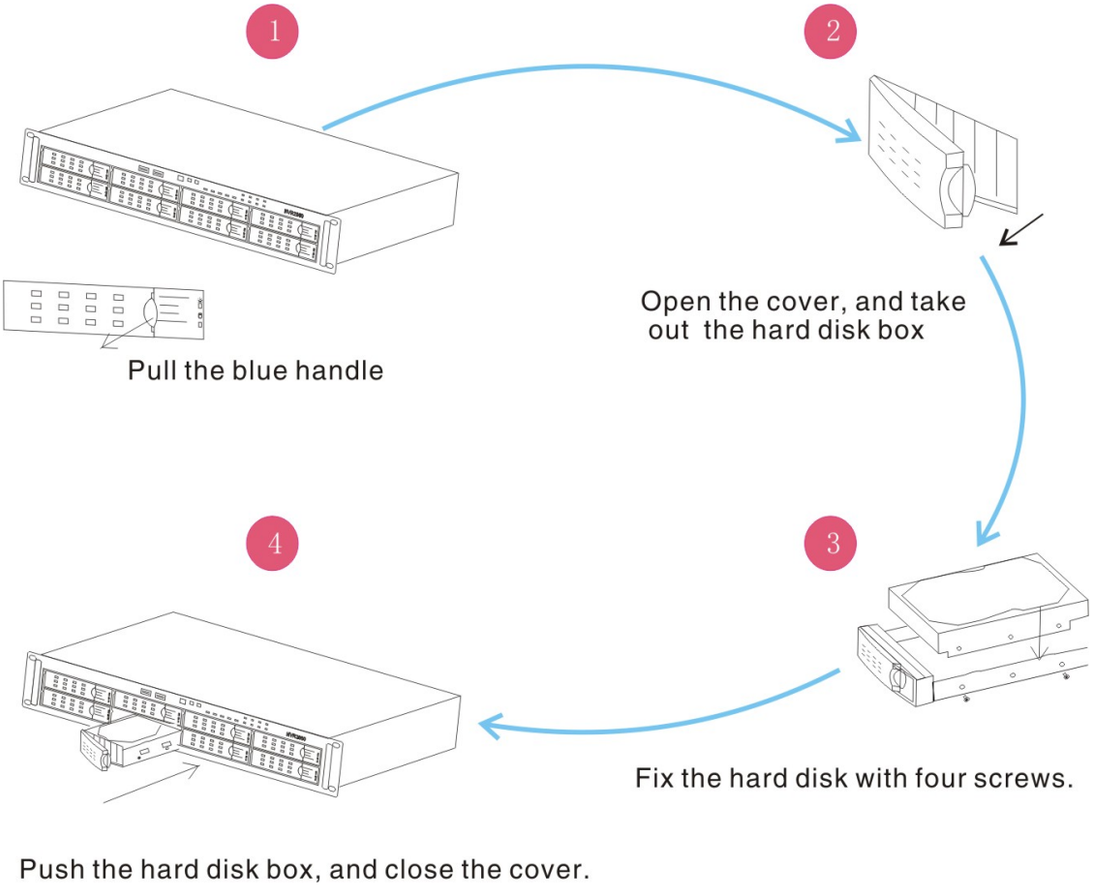

1
2
Pull the blue handle
Open the cover, and take out the hard disk box
4
3
Push the hard disk box, and close the cover.
Fix the hard disk with four screws.

Figure 2-5 Installing Hard disk for NVR2860 and KDM201S

2.5 Configuration wizard

Before building the surveillance environment, first conduct initial NVR configuration.

2.5.1 NVR2820L

According to the section “1.4 NVR Panels“, after all the cables connection. NVR2820L will automatically start and it will automatically partition and format the built-in hard disk at first.

As NVR2820L has no local display output, its initial configuration need use IPCSearch which in the same LAN to configure.

Default Parameters:

- IP Address: 192.168.1.100
- User Name: admin
- Password: admin123

Steps:

1） Run IPCSearch in the attached CD;

2） Select NVR with the default IP address in IPCSearch;

3） Click Modify Params to modified the network parameters if necessary;

4） After modified the parameters NVR2820L will restart and IPCSearch will re-find it, then double click it or click Login, you will login NVR Station——the NVR Client;

5） After login NVR Station, you need add IPC in surveillance list in the left side.

Notice:

1: The system requirement of PC which run NVR Station, please refer to Section “7 NVR Station”.

2: All the operation of NVR2820L need in the NVR Station, the function of NVR Station please refer to NVR Station Help, in this document we’ll not repeat it.

2.5.2 Other NVR

Figure 2-6 Wiring of NVR2820 Wizard Configuration

After finish connecting cables, turn on the power and press the power switch power **ON**.

For first use, the **Configuration Wizard** interface opens automatically,

Alternately, from **Main Menu** → **System** → **Wizard**.

In the **Wizard**, you may configure:

- Network information
- Hard disk partition
- Networking settings
- Record Settings
- Alarm settings

For initial configuration, it is recommended that network configuration be made first, and other settings may be conducted after the buildup of the surveillance system.

Configuration information:

Parameter	Description
NVR No.	If a number of NVR are used, please set the NVR No. from 0 to 8.When it is 8, the NVR can be directly controlled by the remote control.
System time	Set the time of the NVR.
IP address	Set the IP address of the NVR.
Subnet mask	Set the subnet mask.
Default GW	Set the gateway of the NVR.
Enable auto networking	In this condition, you check the box: NVR and video units are in the same LAN, and the number of video points does not exceed 16 and there is only one NVR. Thus, you implement auto networking without adding camera manually. For a dial-up network or device placed in different LANs, you shouldn't check it. Refer to Chapter 3 for network configuration.

For a dial-up network or NVR with the use of DDNS, network information may not be set for the time being. For detailed configurations, refer to related network configuration sections.

2.6 Configuring Video Source Device

The video unit, such as KDM2300 adapter, has initial network settings. For its availability in the surveillance system, the network settings may be changed according to the actual network conditions. For details, refer to the appendix.

2.7 Connecting Cables

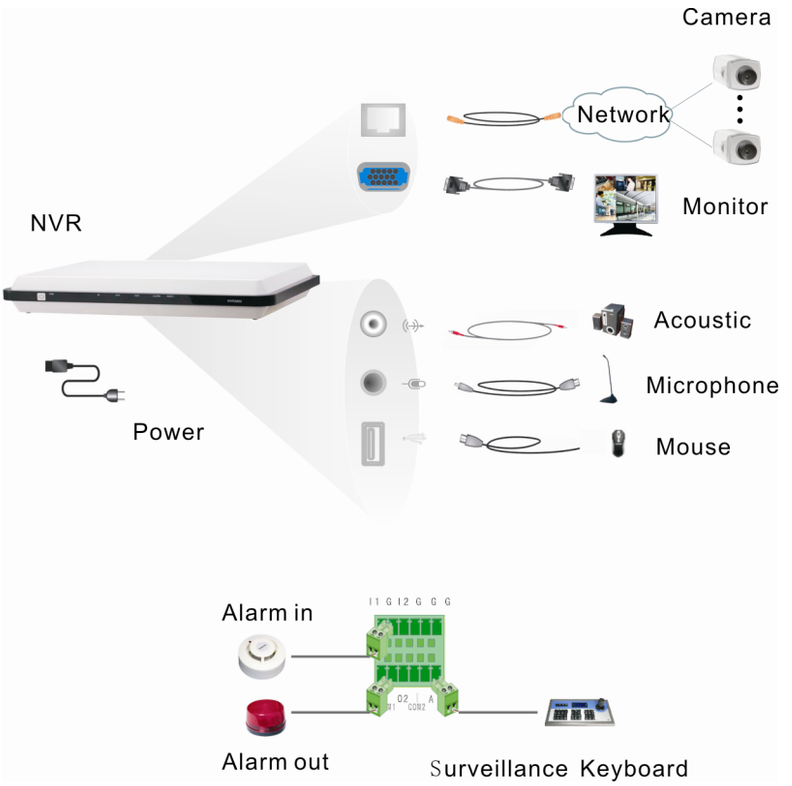


Figure 2-7 Connect NVR cables

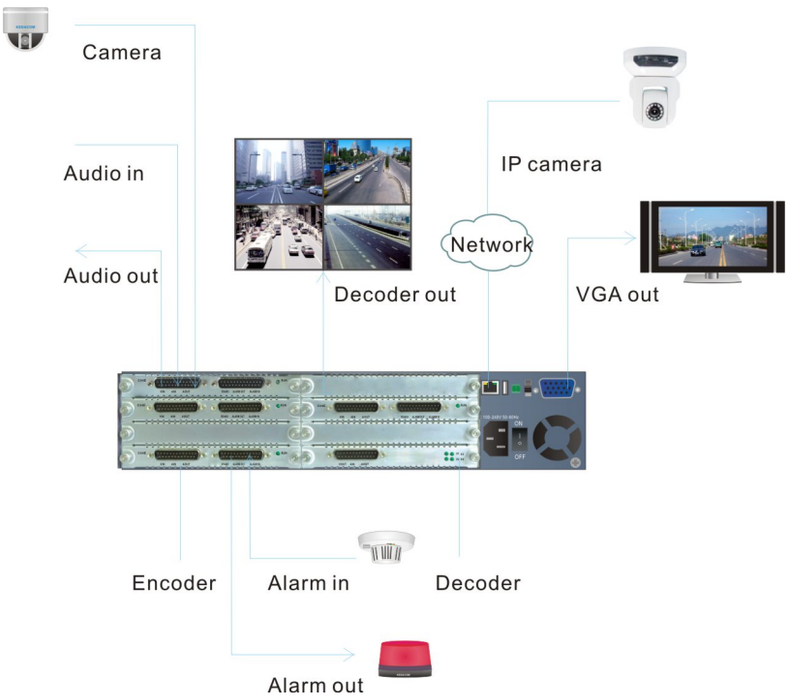
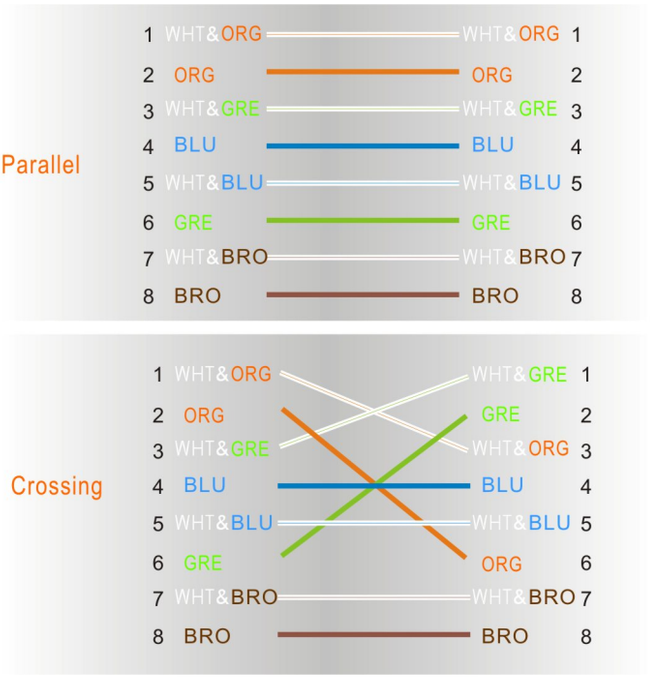


Figure 2-8 Connect KDM201S cables

Network Connection

Connect the NVR, camera and video unit to the network.

The illustrations show the method to make a network cable:



Connect Display/Monitor

Please select a display or monitor according to the network configurations to facilitate live video and NVR parameter configuration.

Connect the blue VGA terminal on the rear panel to the display.

Connect the BNC connector on the rear panel to the monitor.

Acoustics/Loudspeaker Connection

Connect an acoustics or a speaker to the audio output connector.

Microphone Connection

Connect the audio in device, such as a microphone, to an audio input interface.

USB Device Connection

The NVR supports the following USB devices:

- USB mouse
- USB DVD rewriter
- USB storage device

When multiple USB devices are to be connected, please use a USB hub, and ZK-033 is recommended.

Alarm Device Connection

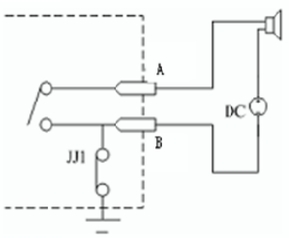
The green terminal on the rear panel of the NVR can be used to connect alarm input/output device and surveillance keyboard, which is same as the ALARM IN/OUT interfaces on the rear encoder of KDM201S.

Pin outs of the green terminal:

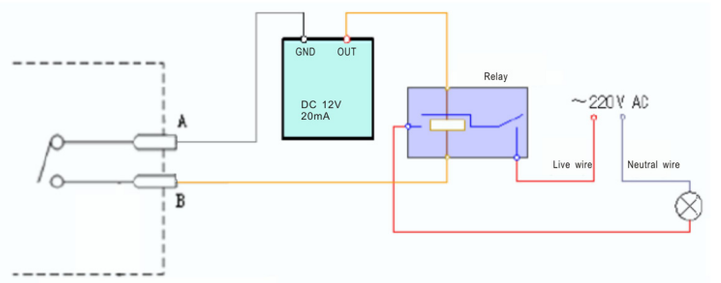
Two pairs of alarm input pins: I1 and G, I2 and G.

Two pairs of alarm output pins: O1 and COM1, O2 and COM2

Connect the peripheral alarm device to the NVR, and the circuit diagram show the following:



DC power alarm in

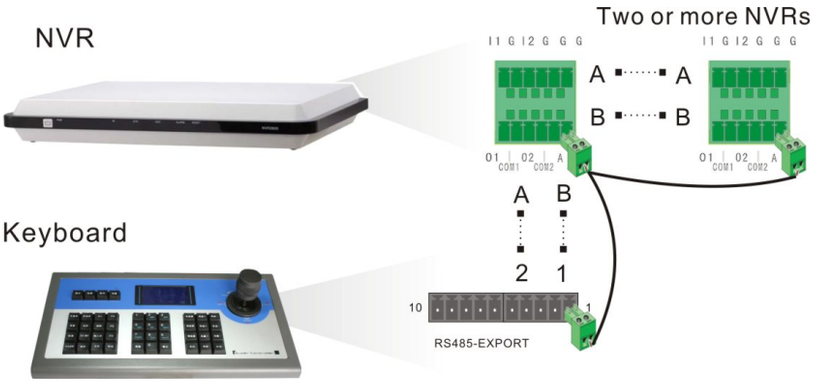


AC power alarm in

The alarm output is a switch (non-voltage), external power is necessary to the alarm device. When the power is DC, keep the voltage 12V (see the previous left figure). When the power is AC, a relay is compulsive (see the previous right figure).

Surveillance Keyboard Connection

The surveillance keyboard KB10 is supported by NVR, which can control multiple NVR at different time. Connect your keyboard to NVR by the RS485 connector, RS482A to connector 2, RS485B to 1, as described in the illustration.



- Connect a keyboard to multiple NVR:
- Connect the keyboard to a NVR;
- Connect all the NVR by RS485 connector, RS485A to RS485A, RS485B to RS485B.

See the ***NVR User Manual*** for surveillance keyboard operating details.

2.8 Verification

Switch on the power supply and turn on the device to enter the **Configuration Wizard** interface (refer to ***NVR Quick Reference*** for details).

The NVR outputs VGA by default. When a TV set is connected, press on your remote control to switch the output mode.

3 Network Configuration

The NVR supports deployment of diversified networks:

- LAN: all devices are deployed over the same LAN.
- WAN: all devices are deployed over the WAN (fixed IP or dial-up network), supporting DDNS.

Hybrid network: the NVR is deployed over an Intranet, while the NVR Station accesses via an Extranet, supporting NAT traversal and Socks5 proxy.

Configure network from:

- Main Menu → Wizard/Network Settings
- Main Menu → Network

3.1 LAN Settings

NVR2820、NVR2820E and KDM201S have an ETH adapters. NVR2860 have two ETH adapters, please confirm your connections before configure.

Parameter	Description
IP address	The NVR may have several IP addresses. If it is over a public network, it is recommended that the IP of the LAN be filled in as its first IP, and the internet IP as the second one. KDM201S have to configure two IP addresses. Fill in the internet IP address as its first IP, and the LAN IP address as the second one which is DHCP server IP address.
Subnet mask	the subnet mask;
Default GW	the gateway address;
DNS Server	If the DDNS service is enabled for the NVR, fill in the available DNS IP over the public network here;
SNTP Server	IP of the SNTP server;
Web Service Port	When the NVR Station access the NVR by domain name, the default port is 80, you can modify the port here.
NVR Station Connect port	The default port is 1730, if changed, be sure to connect the right port by NVR Station.
Local Port Receiving NVR Station Detection packets	When NVR Station is located in the NAT, please configure it.
Enable auto	After the auto networking is enabled, the video unit over the surveillance network will automatically add to the NVR without manual adding.

networking	
Packet Lost Resend	After enabled, lost video packets will be retransmitted.
Enable DHCP	NVR worked as a DHCP server, and dispatch IP address to the video unit which use DHCP

3.2 Dial-up Network Settings

Parameter	Description
Enable PPPoE	Enable dial-up function;
Dial-up username	Internet access username provided by the ISP;
Dial-up password	Internet access password provided by the ISP;
Auto dial-up	Auto dial-up after network disconnection. This check box is recommended to be selected; otherwise you have to reset the NVR in case of network disconnection;
waiting time	Waiting time for dial-up each time;
Retry times	The count of auto dial-up tries when failure connection.

If the NVR accesses to the surveillance network in form of domain name over a PPPoE network, the DDNS service must be enabled, you need to set DDNS parameters.

3.2.1 Dynamic Domain Name Server (DDNS)

After proper setting of the PPPoE parameters, enter the **DDNS Parameters** interface from the NVR **Network Parameters** interface:

1） Enable DDNS service（enter the DNS server first, Refer to DNS server parameters in Section 3.1 ）

2） Configure DDNS server

3） Enter the passport and password

3.3 System service

Parameter	Description
Enable auto networking	If this option is selected, the NVR search the device and add it automatically.

Parameter	Description
DHCP	The NVR worked as a DHCP server, and assign IP information to video units, such as IPC, IPA, and decoder. See later calculating method for details. If NVR2860 offer DHCP, the ETH1 connector must be used to connect to the network.
Packet lost Resend	If the option is selected, the lost packet will be resent to build good video quality.
SNTP server	The synchronous time server.
Web service port	The visitor connect NVR by domain name through the port that be defined here.
NVR Station Connection Port	The default value is 1730, please connect the right port when modified.
NVR Station receive Resend Port	The NVR Station receives the resend package through the port defined here.

Notice: DHCP IP address pool:

1: NVR2860 has two Ethernet cards, calculate the IP according the first IP address and subnet addresses both of ETH0 and ETH1(1000M), to build two LAN.

2: To use DHCP server of NVR2860 need connect ETH1 (1000M), the way to use DHCP server of other NVR is the same as “Notice 1”.

3: If the IP address of ETH0 or ETH1 and the default gateway are in the same LAN, the default gateway will affect the ETH0 and ETH1.

3.4 NAT Traversal Settings

The NVR supports NAT traversal. The NAT traversal setting method is as follows:

Main Menu → Network → NAT

Select the check box **NVR Located in NAT**.

Parameter		Description	
NVR	Local Port Receiving NVR Station Detection Packets	The port for NVR Station to send packets to traverse NAT	
	Local Port Receiving DVS Detection Packets	DVS refers to encoder, IP Camera or other devices to serve as encoder.	
Camera	Camera	Select a video source;	
	The port for NVR to receiver video 1	NAT mapping port	Camera lay in different

	The port for NVR to receiver audio	NAT mapping port	NAT with NVR
	The port for NVR to receiver video 2	NAT mapping port	

Click **advance** to set the camera NAT parameters.

For NAT settings, refer to the NAT setting section in the appendix.

3.5 Proxy Settings

The NVR Station can access the NVR via Socks5 proxy. When the proxy function is enabled, Make sure:

Devices using proxy are not filtered by the proxy server;

The proxy service is available.

The NVR uses Socks5 proxy. Refer to the appendix for detailed proxy settings.

3.6 Domain Name Service Settings

The NVR supports access by domain name. Two cases are involved:

When the NVR uses a fixed IP, release the domain name, and the user may access the NVR with the fixed IP or domain name;

When the NVR uses a dynamic IP, refer to Section 3.2.1 for domain name settings. The NVR Station can only access the NVR with the domain name.

4 Video device Management

Video device means video encoder, IP Camera and decoder.

The NVR supports flexible networking, as well as auto and manual networking.

Notice: After networking, when you log on to the NVR Station to browse videos in local login mode, please make sure that the smooth network connection between the visitor and the Encoder, for example, the configuration of such information as route or gateway.

4.1 Automatic Networking

If there is only one NVR over the network and it is in the same LAN as all video units, after the auto networking function is enabled, the user can implement auto networking without adding Manual.

Enable auto networking:

- **Main Menu → Settings → Network**
- **Or Settings → Wizard/Network Settings**

Select **Enable Auto Networking** on the open window.

Notice: Upon auto networking, please make sure that all devices involved are powered on and normally connected to the network.

4.2 Add Video device

If the number of surveillance sites exceeds 16 and two or more NVR are deployed over the surveillance network, please take the manual networking mode.

1） Select **Main Menu → Devices** or **Wizard → Networking → Devices**. An interface appears. Click related functional button to enter related interface.

2） Click **add device**, and enter the IP information to conform;

3） Or click **search device,** and select the device in the list, then click **add device** in the open windows.

After the device is added to the NVR, a camera ID is dispatched automatically which is unmodified, and the ID indicate the relationship between the video and the monitor when a keyboard control the TV wall.

Notice: If the video device cannot be found but the device is online actually, check the address of the platform which the video unit is added to is correct. Please refer to the appendix for the video device registration address.

See section “Appendix 1” for network access of devices other than multicast devices.

4.3 Video device management

Enter into the device management interface from the main menu, and select the device:

- Delete device
- Change device
- Change name
- Monitor status
- Restart device
- Configuration settings

Notice: please operate the video device when it is online. You are suggested to change device instead of delete.

4.3.1 Modify Registration Address

You can change the address of a registered device (except the internal device), conduct the following operations:

1） Enter the interface for adding devices;

2） Select the device from the devices list;

3） Click **Modify Address** on the lower part of the interface;

4） Enter the address of the registered surveillance platform again or directly register to the current NVR platform on the open interface.

4.3.2 Replace a Device

The internal devices can be replaced online instead of delete. Replace device B with A:

Enter into **add device** interface, and select device A in the list, then click **change device**;

Select the device B to be replaced in the popup windows and confirm it;

A is add to NVR, and B is delete at the same time.

4.3.3 Device group

NVR2860 device list divided into encoder and decoder group, and group management is supported.

Create a new group in encoder or decoder group.

Click **group management**, name or modify the group on the popup interface.

Click the video unit of encoder or decoder, and click the button **add group**, then add the unit to the group.

4.4 Parameter Settings

On the **Settings** interface, set the general information, video encoding, motion detection, OSD parameters, COM parameters, network parameters and dial-up settings.

4.4.1 General

Parameter	Description
Device	Name the device
Device Type	The model of the Device
Alarm Inputs/outputs	Read only, displaying the count of alarm inputs/outputs of a device
Alarm recovery time	Alarm time after end of an alarm
Version	Read only, displaying version information of a device

4.4.2 Audio ENC

Parameter	Description
Audio Encoding Type	Encoding standard used by audio encoder
Audio Input Type	Audio input interface type
Dumb	Shutoff the microphone
AEC	Acoustic Echo Canceller

4.4.3 Video ENC

Parameter	Description
Encoding format	Encoding standard used by encoder
Resolution	Video resolution after encoding

Parameter	Description
Collection frame rate	Frame rate of collection acquisition, it can be a higher value if the network conditions are much better; otherwise, please set a lower value.
Code rate	Video rate after compression, depending up network bandwidth
Key frame interval	Frame interval for sending complete information frames, if there is high requirement for video quality and the network conditions are good, reduce the key frame interval appropriately.
Bit rate control	CBR provide constant bit rate while variable for VBR
MAX. Quantization	Modify the parameter when video quality reduces caused by network unstable.
MIN. Quantization	Modify the parameter when video quality reduces caused by network unstable.

4.4.4 Minor stream

Minor stream is a stream which is the same source with the main stream but different resolution output to support displays.

Set the parameter according to the main video ENC as subsection 4.4.3.

4.4.5 Motion Detection

Parameter		Description
Enable motion detection		If this check box is selected, motion detection is enabled; if not, motion detection is disabled.
Detection sensitivity		The higher the sensitivity, the more sensitive to change of video, and vice versa
Detection area	All area	All areas of the video area
	Assigned area	Edit a selected area as a detection area. Set the area first and then set its detection sensitivity. Edit of detection area: draw a rectangular frame on the screen area, and the area inside the frame is the selected or cancelled area. If the original coordinate of the rectangular frame is in selected status, the rectangular frame is selected. If not, it is not a selected area.

4.4.6 Image Shade

Image Shade refers that shade some sensitive parts of the image with mosaic, which features needs the

support of the DVS.

The image is divided into 16*12 parts, maximum 24 parts shaded are support at a time.

How to Shade image:

Select **Image Shade** tab, and select **Enable Image Shade**, and click in the image area below, then draw one or more rectangular in the area, then click **save** to take effect.

How to withdraw the shade:

Click the shade area to withdraw, then click **save** to take effect.

4.4.7 OSD

Parameter	Description
Enable	Apply the current caption settings
Caption	Edit the caption on the video
XY axis	Set the position of caption on the video

4.4.8 Camera

Parameter	Description
Camera type	The type of cameras
Camera address code	Address code, refer to the camera instructions for details.
Control COM	COM No. on the camera
Camera name	Name of the camera
Camera ID	Camera ID, read only

4.4.9 COM

Parameter	Description
COM type	Serial port type of the device

Parameter	Description
Bits rate(bps)	Baud rate of data transmission over the COM port

4.4.10Network Parameters

Parameter	Description
IP address & Subnet mask	**Add**, **Edit** or **Delete** network address information;
Gateway	Gateway of the network over which the device is located
Register Address	NVR address registered by the device
Search multicast IP	Multicast IP of the device

4.4.11Dial-up Settings (validated after reset)

Parameter	Description
Enable PPPoE	Enable dialup Internet access
Dial-up username	Username provided by the ISP
Dial-up password	Dial-up Internet access password (provided by the ISP)
Auto dial-up	Set the auto dial-up waiting time and retries, this check box is recommended

4.4.12Alarm Settings

Parameter	Description
Enable Alarm Caption	If the caption is enabled, the video show captions When alarm occurs.
Correlative Camera with alarm	The camera correlative with alarm
Alarm Output	Output to the alarm device
Alarm Detection Status	Set the detection periods
Start time of alarm detection	Set the detection time
Alarm duration	Enable when periodic or period of time is selected
Alarm input	Please assure consistent with the device actually

4.5 NVR register to Surveillance Platform

NVR2820 and NVR2820E can be registered to surveillance platform:

1） Register NVR to surveillance platform(refer to the surveillance platform for details）;

2） Records the PUID when register, dispatch by system automatically;

3） Enter into the **Main Menu/Settings/access**;

4） Input the parameter registered:

Parameter	Description
Platform type	Select the platform to register (SP2 or 2800E)
platform Address	The **IP** or **domain name** of the platform
Platform port	5510 by default，ask the administrator for details
PUID	The PUID dispatch by the platform
NMS IP	The network management server，ask the administrator for details
NMS Port	1727 by default
Enable LDS	When LDS is enabled, please set the **platform address** as the LDS Address

5 Storage and Backup

Storage and backup device supported:

- Built in hard disk
- External USB disk array
- External USB DVD rewriter
- Refer to Section 2.4 for the installation of built in hard disk.
- Disk management functions:
- Disk partition
- Disk formatting
- Set disk partition as recording partition
- Disk check
- Disk management method:

Select **Main Menu** → **Settings** → **Disk** to enter the **Disk Management** interface:

Notice:

1: The total number of external disks should not exceed 8, and the total capacity should be greater than 2G and less than 8T. The total number of partitions should not exceed 24, and the capacity of a single partition should be less than 300G.

2: To access multiple USB devices, a USB HUB is recommended (such as ZK-033).

5.1 Disk Management

Disk Management	Operation Method
Partition	Select a disk. A menu appears. Select **Partition**. A built in hard disk has a maximum of four partitions. The first partition of the first disk is 10GB by Automatic partition. You can change it on manual partition. It is recommended this partition should be use the default configuration as the snapshots and the log is saved in this partition
Unload	Unload the USB device
Format	Format the selected partition
Set record partition	set a partition as a record partition

Notice: Never remove a USB storage device when it is operating (such as recording, playing and backing up).A

safe method for removing the USB hard disk is to download the disk first and then remove it after it is downloaded successfully.

To change disk connection, for example, take out the built-in hard disk and use it as an external disk, format the disk again, or vice versa.

Different colors show the partition status:

Red for system partition, green for record, Cambridge blue for no record, and pink is unformatted.

5.2 Backup and Write in DVD

The records can be backed to USB storage device, or written with USB DVD writer.

5.3 IP SAN

NVR2860 support IP SAN.

Enter **Main Menu → System Manage→IP SAN** to access IP SAN.

1） First add an IP SAN Server, and then operate the targets:

2） Click the Add button below the Discover Target Portals to add an IP SAN IP and ports. If CHAP is enabled in the IP SAN Server, please enter the username and password;

3） Check the status of target, press the refresh button to get the latest status; and also you can log off or log on the target.

4） The connected status shows that the IP SAN is ok.

Notice: The LUN should be set as 512byte, when the IPSAN connect the NVR.

5.4 RAID5

NVR2860 supports RAID5. Be sure there are 3 pieces of hard disks in the NVR2860, before use this function.

Steps:

1） Uninstall all the hard disks from NVR2860, the path is Setting-Disk;

2） Click

-Create Disk Group, choose disks you needed, then create RAID5;

3） Please be patient to wait the RAID5 created. When you finished the created, you can click Disk Group Information to know the details of disks.

If a RAID5 was already created, you have to delete it first. Then you should be allowed to create a new RAID5.

6 Alarm Device Management

Alarm input device involves two types: **Normal open** and **Normal close**.

Normal open: it is turned off in normal condition without alarm input, and will not trigger alarm. If an alarm occurs, it is turned on to trigger alarm;

Normal close: it is turned on in normal condition without alarm input, and will not trigger alarm. If an alarm occurs, it is turned off to trigger alarm.

The NVR supports two alarm inputs. Set the alarm input type as follows:

Select **Main Menu** → **Alarms**→ **Alarm Input**. Select **normal open** or **normal close** on the pop-up interface.

For detailed type, refer to the operating instructions for the alarm device.

Notice: if the alarm input interface is empty, set the alarm input to normal open.

Alarm output is Normal open by default.

7 NVR Station

The NVR management system (NVR Station) provides user-friendly operation interfaces for remote access, featuring simple and easy to use.

The NVR Station provides two modes: software setup and WEB access.

The NVR Station supports a maximum of 128 NVR, supporting the following functions:

- Video surveillance
- Device configuration
- Live update

Requirement for operating environment:

Hardware environment: PC (recommended configuration for 8-screen browse: Pentium 4 2.8 G or above; memory: 512M or above. recommended configuration for 16-screen browse: Intel Pentium D 820 2.8GHz; memory: 1G or above.

Software environment: Windows2000 or later (IE6), Windows XP recommended.

Notice: If a firewall is installed on your PC, please set the NVR Station as trusted.

7.1 Installation and Removal of Local Software

Installation of Local Software

Double click the setup file <NVRSetup.exe> to start installation, select language to install, and click **Next** go on. The installation is completed and a shortcut icon will be created on your desktop.

Removal of local software

Select **Control Panel → Add/Remove Programs**. Select the NVR Station and click Remove to uninstall the software.

7.2 WEB Access to NVR

Enter the IP address or domain name into the IE address bar. For the initial use, a safety alert appears,

Click Install. The login interface automatically appears after completion of installation.

Enter the username and passport in the popup interface。The default username and password both are admin。

7.3 Login

Double click the icon on the desk，and enter the username and passport in the popup interface。
The default username and password both are admin。

8 NVR Management

8.1 Recovering Factory Settings

To recover factory settings means the recovery of default settings. Normally, this operation is not recommended.

Select **Main Menu** → **Settings** → **System Reset**. It will require entering your username and password again.

Recover factory setting parameters:

All: All parameters will be recovered to their default settings.

Custom: Only selected options will be recovered to their default settings.

8.2 Data Restoration

By default, the NVR system will back up current settings (system settings and all user settings) once every 24 hours. By default, the system will back up settings before shutdown.

If unexpected setting changes occur to the system, you may conduct data restoration operation to recover them to previous settings or settings 24 hours ahead.

Select **Main Menu** → **Settings** → **Restore**. Click **Restore** from the pop-up menu to start data restoration.

8.3 Software Update

Three update methods are available:

- U disk update
- FTP Update
- Client update

8.3.1 U Disk Update

Operating Procedure:

1） Create /up directory in the U disk

2） Copy the update package nvr.pkg.gz to the up directory

3） Insert the U disk to the USB interface of the NVR

4） Select **Main Menu → Settings → Update**, and click Search.

5） Select the update file, and click **Update** to start update.

6） The system restarts after update.

Notice: FAT16 file system of U disk is not supported in the windows system to update NVR.

8.3.2 Update via COM Port

Operating Procedure:

1） Connect the COM port of the NVR to the COM port of your PC.

2） In the local PC, use the FTP tool to upload update file, that is, to set Current Directory and **S**erver interface, as shown in the following figure:

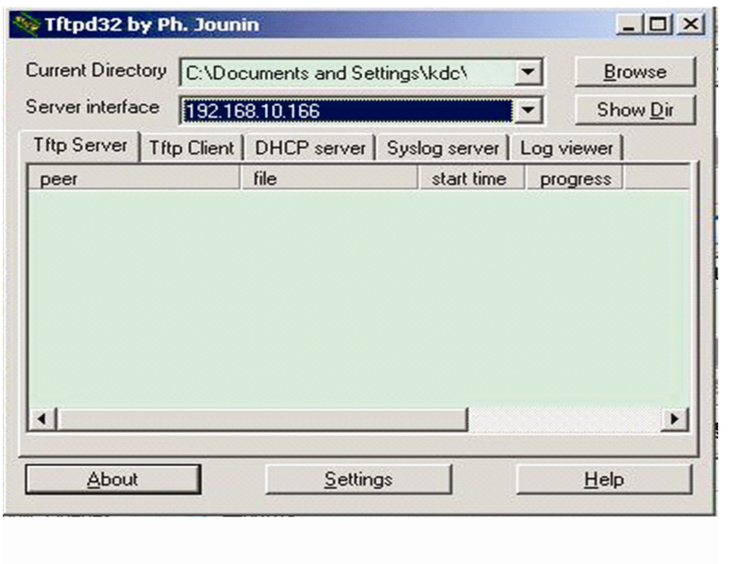


Figure 8-1 Upload Update File

In your PC, select **Start** → **Programs**→**Accessories**→ **Communications**→ **Hyperterminal**. Set the **Name** and **COM1** of the connection and set COM parameters (select **384000** for **bits per second**, **None** for **Flow Control**, select default settings for other options).

Click **OK** to enter the hyperterminal. Reboot the NVR. Press CTRL+ B to enter the boot mode. Enter update filename (enter the filename of the update package, nvr.pgk.gz, for example, stored under the directory of ftp tool). The update starts.

Do not turn off the power supply during update, otherwise the update will fail. NVR restart is recommended after update.

8.3.3 Live update

Operating Procedure:

1） Log on the NVR Station

2） Select NVR from the surveillance list and select **Version Update** from the shortcut menu.

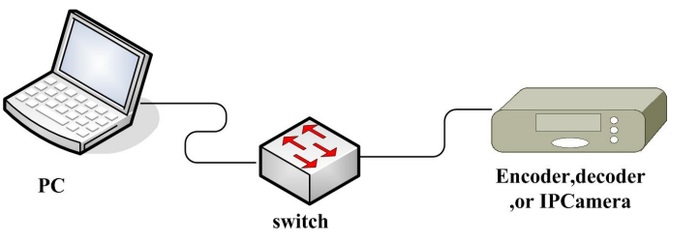
3） Select the update package to update the NVR software version.

4） Refer to related update section in Online Help of NVR Station for details.

Appendix

1 Registration Parameters Settings Other Than Multicast

For the Video device other than the multicast of the NVR surveillance system to register NVR, network configuration should be made first. The connection method is as follows:



Install the software IPCCtrl on your PC (refer to delivery-attached CD for the software).

Run IPCCtrl, and search device automatically. Select the device in the list and log on by admin, the default password is admin.

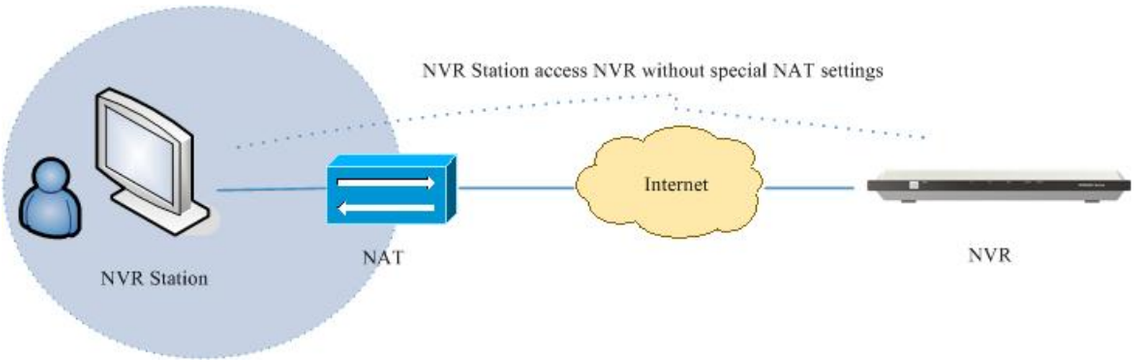
- Click the Parameter interface:
- Set the network parameters
- Set the register platform parameter

2 NAT Settings

The NVR, Camera and NVR Station are located in WAN/LAN. When they are in the same LAN, NAT setting is unnecessary. If any of them is in different network and needs mutual access, NAT access setting is needed.

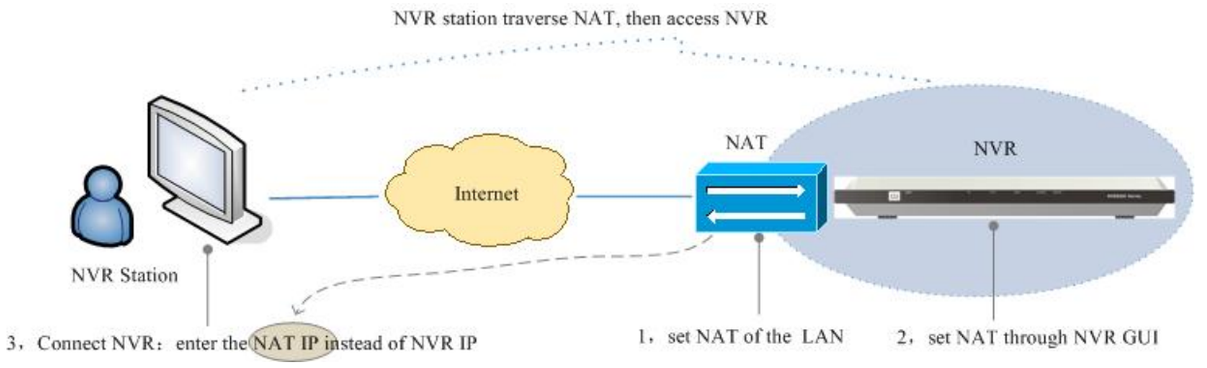
Notice: when NAT is set in the surveillance network, to make full use of all functions of the surveillance recording system, enable the TCP ports in NAT: 5510, 1730 and 15510.

2.1 NVR Station Located in NAT



When the NVR Station is located in a LAN, the LAN is configured with NAT and the NVR is located in a public network, the NAT setting is completed automatically for the NVR Station to access the NVR, so the user does not need to make setting.

2.2 NVR Located in NAT



When the NVR is located in the LAN, the WAN is configured with NAT and the NVR Station is in the public network, the following setting is needed for the NVR Station to access the NVR:

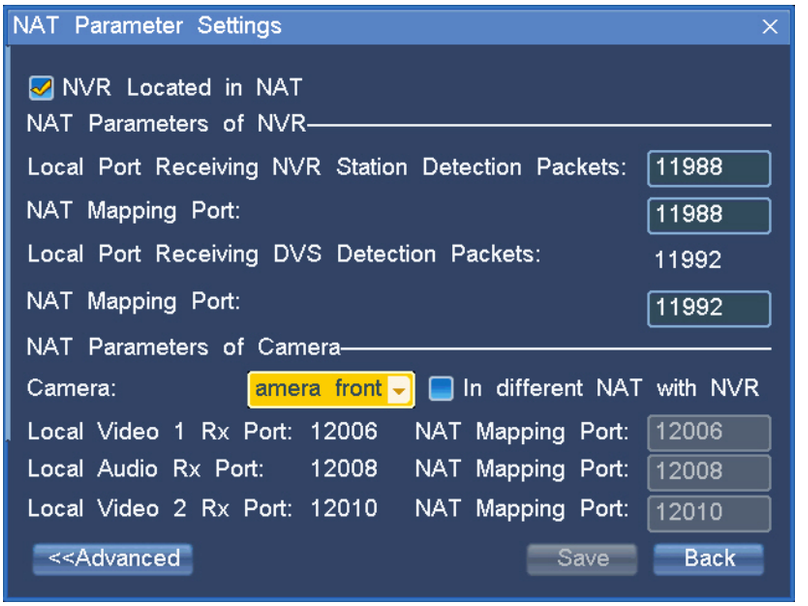
2.2.1 NAT Settings of the LAN

Set the NAT of the LAN at the NVR end, map the signaling port (TCP) 1730 of the NAT into port 1730 of the NVR, and map the packet port (UDP) 11988 of the NAT into port 11988 of the NVR.

2.2.2 NVR Settings

Set Local Port Receiving NVR Station Detection Packets, Nat mapping port and DVS mapping port.

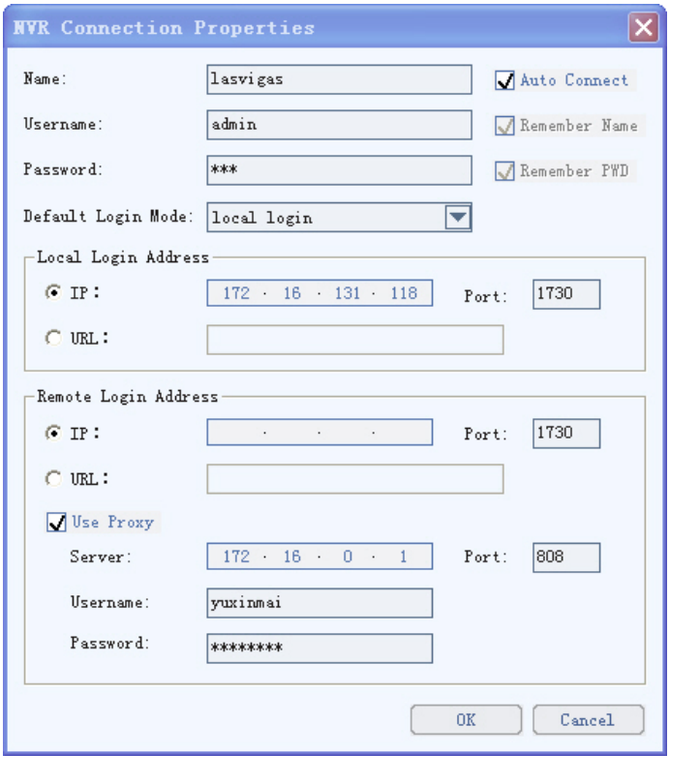
Method for entering the interface: Select **Main Menu** → **Settings** → **Network** → **NAT**, as shown in the following figure:


NAT Parameter Settings
NVR Located in NAT
NAT Parameters of NVR
Local Port Receiving NVR Station Detection Packets: 11988
NAT Mapping Port: 11988
Local Port Receiving DVS Detection Packets: 11992
NAT Mapping Port: 11992
NAT Parameters of Camera
Camera: amera front
In different NAT with NVR
Local Video 1 Rx Port: 12006 NAT Mapping Port: 12006
Local Audio Rx Port: 12008 NAT Mapping Port: 12008
Local Video 2 Rx Port: 12010 NAT Mapping Port: 12010
<<Advanced
Save
Back

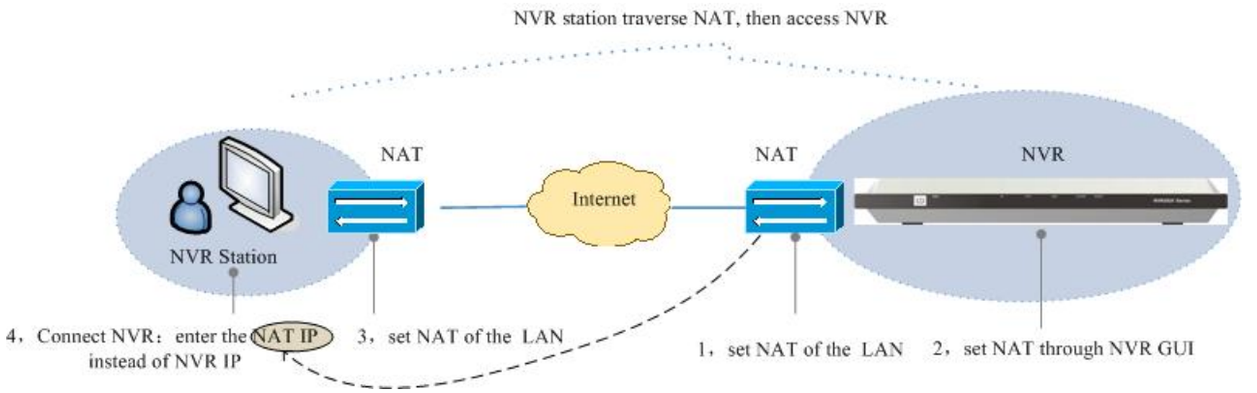
2.2.3 NVR Station Settings

When an NVR Station in different NAT is connected to the NVR, the IP address of the NAT must be used to replace that of the NVR. The connection port keeps unchanged.

Method for entering the interface: open and log on. Select NVR. Select **Connection Properties** from the right-click menu. Change the NVR IP. Change the NVR IP to the IP of the NAT, as shown in the following figure:

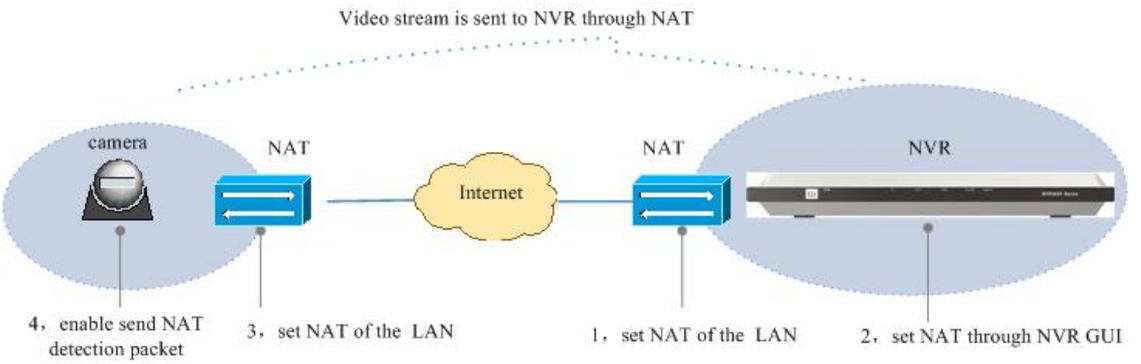


2.3 NVR and Station Located in Different NAT



When the NVR and Station are located in different LANs, with the configuration of NAT. the setting method is the same as that mentioned in Section 3.2 in the Appendix, so no further description will be given here.

2.4 Camera and NVR Located in Different NAT



2.4.1 NAT Settings

When the Camera or encoder (DVS) and NVR are located in different NAT:

The signaling port (TCP) 5510 of the Camera and NVR must be mapped into port 5510 of the NVR

Set the three packet ports for the NVR to receive videos, audios and video 2 of the Camera mapped respectively (The values mentioned of the NVR can be seen from NVR or Station.

If the DVS (Camera or encoder) is also located in the NAT, and furthermore in different NAT from the NVR, port 11992 must also be mapped into the NVR

2.4.2 NVR Settings

enter into the menu: Main Menu → Settings → Network→ NAT Parameters,

Set the NAT mapping port of NVR Station and DVS;

Set the mapping ports of the NVR to receive data from video port 12000, audio port 12002 and video2 port 12004 of each Camera in the NAT.

2.4.3 Camera (DVS) Settings

Set the DVS, Change the IP address of the Camera registration platform：

1） Login the IPCCtrl;

2） Modify the platform information;

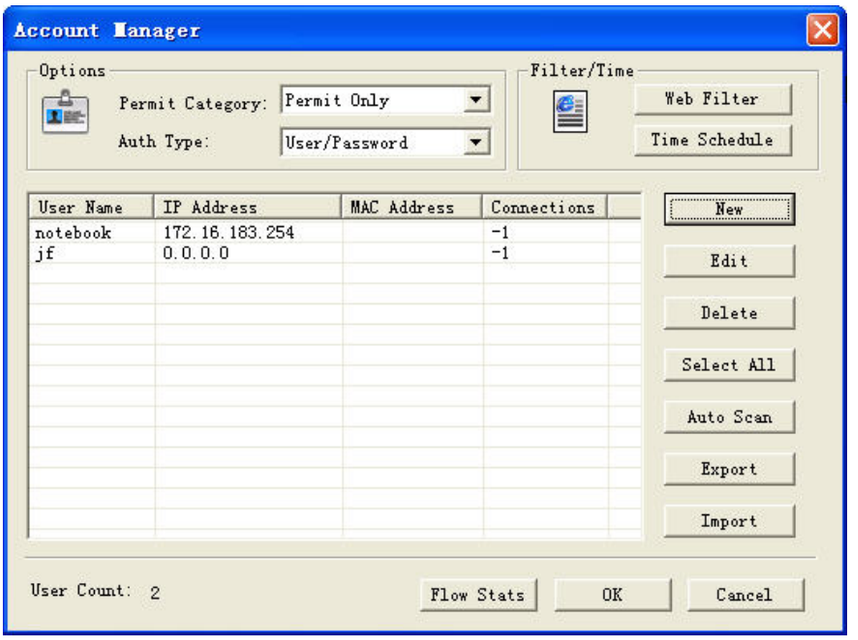
3） Select the check box **Send NAT Detection Packet** ;

4） If registered by domain name, fill it in **domain** option, and fill the DNS IP.

3 Settings of Proxy Server

The NVR supports networking in complicated environment, as well as the connection of the NVR management system client with NVR via proxy.

When the proxy function is enabled, it agents the server. Make sure that the devices using proxy are not filtered by the proxy server and the service is available. The NVR uses Socks5 proxy. This section takes the proxy service setting software used by the author as an example to describe how to set the proxy.

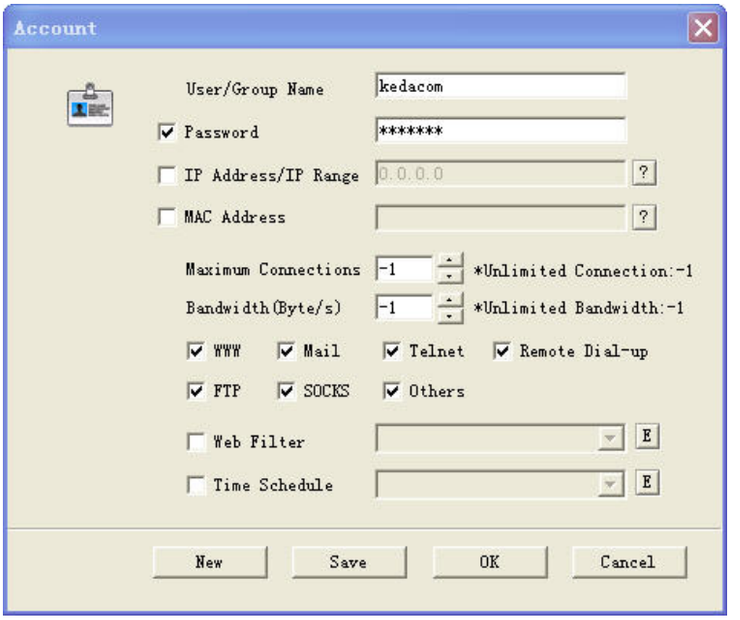


Appendix Figure 3-1

1） Select Permit Only for Permit Category;

2） Select User/Password for Auth Type;

3） Click **New** to add a new user.



Appendix Figure 3-2

4） Fill in **User/Group Name**. Select the **Password** check box and fill in the password.

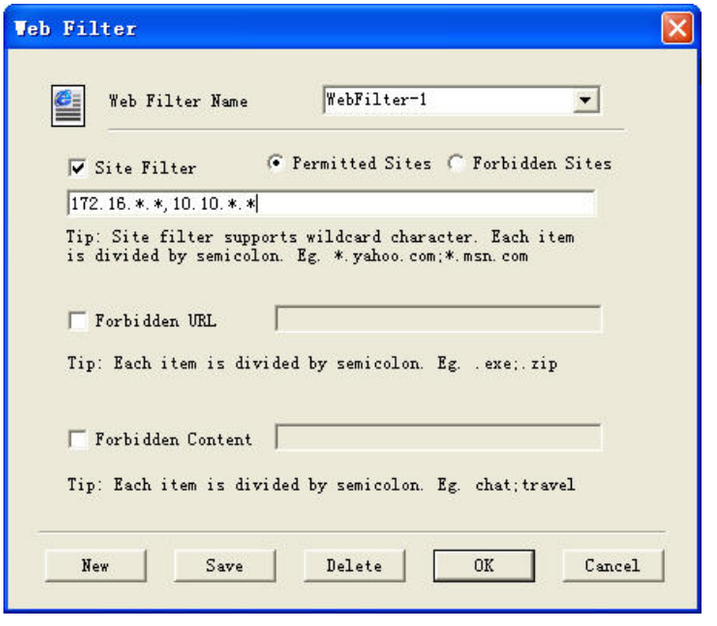
5） Set the **Maximum Connection** to -1, that is, no limitation on connections;

6） Set **Bandwidth** to -1, that is, no bandwidth limitation;

7） Select the **SOCKS** check box.

8） After setting, click **OK** to exit.

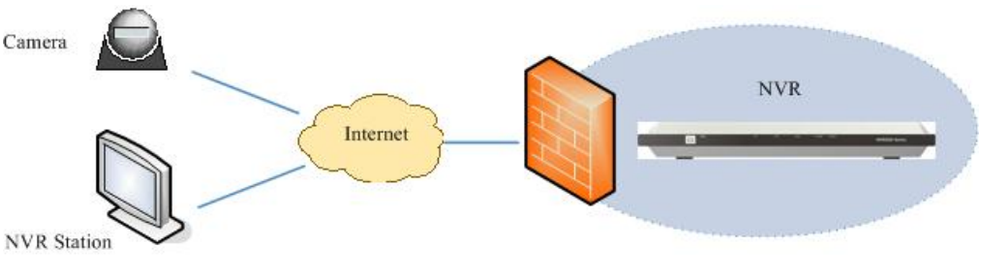
It is recommended that the **Web Filter** check box be not selected. If this check box is selected, try not to filter the device using this proxy service, as shown in Appendix Figure 3-3:



Appendix Figure 3-3

If the device with an IP of 172.16.131.12 wants to use the proxy, the **Permitted Sites** must include the network section or the **Forbidden Sites** should not include the network section.

4 Firewall



If the NVR is located inside the firewall, while the NVR Station and video source devices (such as encoder adapter) are outside the firewall, enable the following firewall ports:

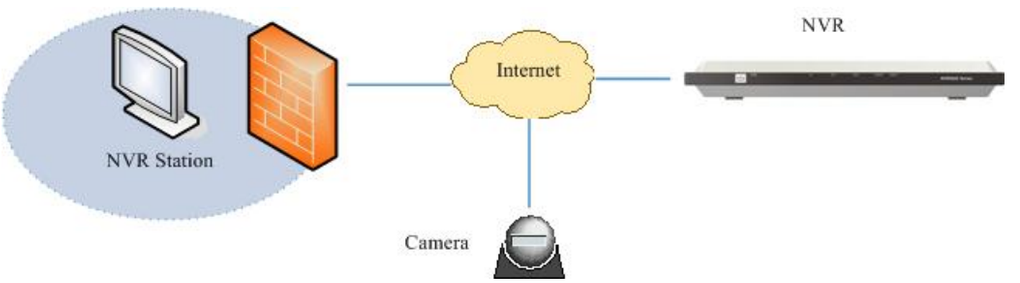
- TCP: 5510, 1730, 21, 15510
- UDP: 5510, 12000-12095, 11992, 11988，11520, 51000-51203

Notice:

NVR Station access NVR which in a firewall by 1730, and if modified in NVR network parameters, open the port in the firewall.

NVR receive Station detection packets NAT MAP by 11988, and if modified in NVR NAT parameters, open the port in the firewall.

Packets resend by port 51000-51203, if the network is stable, the port is not compulsory.



If the NVR Station is located inside the firewall, and other devices are outside the firewall, enable the following firewall ports:

- UDP: 20000-20287

5 Technical Specifications

5.1 NVR2820L

Audio/video	Video compression	MPEG-4, H.264	
	Resolution	The same as encode devices	
	Frame rate	1/16~30 fps (adjustable)	
	Code rate	64kbps - 4Mbps (adjustable)	
	Audio compression	G.711, ADPCM	
	Transport delay	<300 ms	
Recording	Pre-Recording	Maximum alarm pre-recording time: 30 s;	
	Storage policy	Storage with built-in hard disk or external USB hard disk or disk array	
	Records replay	4 720P, 4 D1,or 4 CIF channels	
Backup	Backup	Supported USB hard disk	
	Download	Download the records through the NVR Station	
Hard disk	NVR2860 built in hard disk	One SATA hard disks	recommend Seagate 500G, 750G, 1T, 1.5T and 2T
	External USB hard disk	A maximum of 32 external USB hard disks or two disk arrays can be expanded, recommend JL-SU43 series、HS410S、Kedacom VS300/VS400 disk array.	
Version update	Software update	Update NVR through U disk, COM port or the NVR Station	
	Video unit	Update the video unit through the NVR Station	
Event alarm	Motion detection	Supporting a maximum of 4 areas	
	Alarm schedule	A maximum of four periods every day	
	Video source loss alarm	Supported	
Device networking	Network environment	Supporting networks of different providers, NAT traversal, and Socks5 proxy	
	Communication protocol	DHCP, PPPoE, SNTP, DDNS, IEEE802.3, RTP, RTCP, and VSIP	
Conventional	Operating voltage	12VDC	

parameters	Placement	Place on a table or mount on a bracket Horizontally
	Operating temperature	0ºC - 50 ºC
	Relative Humidity	10% - 85 % (non-condensing)
	Operating Altitude	-60～5000m

5.2 NVR2860

Audio/video	Video system	Video	PAL/NTSC
		VGA	by default: 1024*768 Maximum: 1920*1080
		HDMI	supported
	Video compression	MPEG-4, H.264	
	Resolution	Main stream: 720P, D1, CIF Minor stream: CIF, QCIF	
	Frame rate	1/16~30 fps (adjustable)	
	Code rate	64kbps - 4Mbps (adjustable)	
	Audio compression	G.711, ADPCM	
	Transport delay	<300 ms	
Recording	Pre-Recording	Maximum alarm pre-recording time: 30 s;	
	Storage policy	Storage with built-in hard disk or external USB hard disk or disk array	
	Records replay	4 720P, 4 D1,or 4 CIF channels	
Backup	Backup	Supported USB hard disk and USB DVD writer	
	Download	Download the records through the NVR Station	
Hard disk	NVR2860 built in hard disk	Eight SATA hard disks	recommend Seagate 160G, 320G, 500G, 750G, 1T, 1.5T and 2T
	External USB hard disk	A maximum of 32 external USB hard disks or two disk arrays can be expanded. JL-SU43 series or HS410S disk, Kedacom VS400 disk arrays are recommended	

Version update	Software update	Update NVR through U disk, COM port or the NVR Station
	Video unit	Update the video unit through the NVR Station
Event alarm	Motion detection	Supporting a maximum of 4 areas
	Alarm schedule	A maximum of four periods every day
	Video source loss alarm	Supported
Device networking	Network environment	Supporting networks of different providers, NAT traversal, and Socks5 proxy
	Communication protocol	DHCP, PPPoE, SNTP, DDNS, IEEE802.3, RTP, RTCP, and VSIP
Conventional parameters	Operating voltage	100VAC - 240VAC
	Placement	Place on a table or mount on a bracket Horizontally
	Operating temperature	0ºC - 50 ºC
	Relative Humidity	10% - 85 % (non-condensing)
	Operating Altitude	-60～5000m

5.3 NVR2820E

Audio/video	Video system	Video	PAL/NTSC
		VGA	NVR2820E-9D/-16D supported 720P
	Video compression	MPEG-4, H.264	
	Resolution	Main stream: 720P, D1, CIF Minor stream: CIF, QCIF	
	Frame rate	1/16~30 fps (adjustable)	
	Code rate	64kbps - 4Mbps (adjustable)	
	Audio compression	G.711, ADPCM	
	Transport delay	<300 ms	
Recording	Pre-Recording	Maximum alarm pre-recording time: 30 s;	
	Storage policy	Storage with built-in hard disk or external USB hard disk	

		or disk array	
	Records replay	NVR2820E-9D,-16D	4 D1 or CIF channels
		NVR2820E	4 CIF channels
Backup	Backup	NVR2820E-9D, -16D support USB hard disk and USB DVD writer	
	Download	download the records through the NVR Station	
Hard disk	NVR2820E built in hard disk	Four SATA hard disks	recommend Seagate 160G,320G, 500G, 750G, 1T, 1.5T and 2T
	External USB hard disk	A maximum of 32 external USB hard disks or two disk arrays can be expanded. JL-SU43 series or HS410S disk and Kedacom VS400 disk arrays are recommended	
Version update	Software Update	Update NVR through U disk, COM port or the NVR Station	
	Video unit	Update the video unit through the NVR Station	
Event alarm	Motion detection	Supporting a maximum of 4 areas	
	Alarm schedule	A maximum of four periods every day	
	Video source loss alarm	Supported	
Device networking	Network environment	Supporting networks of different providers, NAT traversal, and Socks5 proxy	
	Communication protocol	DHCP, PPPoE, SNTP, DDNS, IEEE802.3, RTP, RTCP, and VSIP	
Conventional parameters	Operating voltage	100VAC - 240VAC	
	Placement	Place on a table or mount on a bracket Horizontally	
	Operating temperature	0ºC - 50 ºC	
	Relative Humidity	10% - 85 % (non-condensing)	
	Operating Altitude	-60～5000m	

5.4 NVR2820

Audio/video	Video system	Video	PAL/NTSC
	Video compression	MPEG-4, H.264	
	Resolution	Main stream:D1, CIF Minor stream: QCIF, CIF	
	Frame rate	1/16~30 fps (adjustable)	
	Code rate	64kbps - 2Mbps (adjustable)	
	Audio compression	G.711, ADPCM	
	Transport delay	<300 ms	
Recording	Pre-Recording	Maximum alarm pre-recording time: 30 s;	
	Storage policy	storage with built-in hard disk or external USB hard disk or disk array	
	Records replay	4 CIF channels	
Backup	Backup	Support USB hard disk and USB DVD writer.	
	Download	Download the records through the NVR Station	
Hard disk	NVR2820 built in hard disk	One IDE hard disk	recommend Seagate 160G, 320G, 500G, 750G, 1T, 1.5T and 2T
	External USB hard disk	A maximum of 32 external USB hard disks or two disk arrays can be expanded. JL-SU43 series or HS410S disk arrays are recommended	
Version update	Software Update	Update NVR through U disk, COM port or the NVR Station	
	Video unit	Update the video unit through the NVR Station	
Event alarm	Motion detection	Supporting a maximum of 16 blocks	
	Alarm schedule	A maximum of four periods every day	
	Video source loss alarm	Supported	
Device networking	Network environment	Supporting networks of different providers, NAT traversal, and Socks5 proxy	
	Communication	DHCP, PPPoE, SNTP, DDNS, IEEE802.3, RTP, RTCP,	

	protocol	and VSIP
Conventional parameters	Operating voltage	100VAC - 240VAC
	Placement	Place on a table or mount on a bracket Horizontally
	Operating temperature	0ºC - 50 ºC
	Relative Humidity	10% - 85 % (non-condensing)
	Operating Altitude	-60～5000m

5.5 KDM201S/ KDM201-D01H

Audio/video	Video system	Video	PAL/NTSC
		VGA	KDM201-D01H supported 720P(Max)
		HDMI	Only for KDM201-D01H
	Video compression	MPEG-4, H.264, KDM201S support H.264 only	
	Resolution	Main stream:D1, CIF, 720P(Only KDM201-D01H) Minor stream: QCIF, CIF	
	Frame rate	1/16~30 fps (adjustable)	
	Code rate	64kbps - 4Mbps (adjustable)	
	Audio compression	G.711, ADPCM	
	Transport delay	<300 ms	
Recording	Pre-Recording	Maximum alarm pre-recording time: 30 s;	
	Storage policy	Storage with built-in hard disk or external USB hard disk or disk array	
	Records replay	KDM201-D01H	1 720P, 2D1or 2CIF channels
		Other modules	4 D1 or 4 CIF channels
Backup	backup	KDM201S support USB hard disk.	
	Download	Download the records through the NVR Station	
Hard disk	KDM201S built in hard disk	Eight SATA hard disk	recommend Seagate 160G, 320G, 500G, 750G, 1T, 1.5T and 2T

	External USB hard disk	A maximum of 32 external USB hard disks or two disk arrays can be expanded. JL-SU43 series ,HS410S disk or Kedacom VS400 disk arrays are recommended
Version update	Software Update	Update NVR through U disk, COM port or the NVR Station
	Video unit	Update the video unit through the NVR Station
Event alarm	Motion detection	Supporting a maximum of 4 areas
	Alarm schedule	A maximum of four periods every day
	Video source loss alarm	Supported
Device networking	Network environment	Supporting networks of different providers, NAT traversal, and Socks5 proxy
	Communication protocol	DHCP, PPPoE, SNTP, DDNS, IEEE802.3, RTP, RTCP, and VSIP
Conventional parameters	Optional module	KDM201S-C04E, KDM201S-D04, KDM201-D01H
	Power Consume	≤400W
	Power	AC 100～240V,50～60Hz
	Operating temperature	-10℃～50℃
	Relative humidity	10％～90％
	Weight	≤30Kg（full loaded）

Glossary

Term	Explanations
NVR	Network Video Recorder
MPEG-4	Moving Pictures Experts Group
NAT	Network Address Translation
DHCP	Dynamic Host Configuration Protocol
SNTP	Simple Network Time Protocol
DDNS	Dynamic Domain Name Server
RTP	Real-time Transport Protocol
RTCP	Real-time Control Protocol
CIF	Common Intermediate Format, with a resolution of 352 * 288
PPPoE	Point to Point Protocol over Ethernet
PAL	Phase Alternating Line, a TV system. China uses the PAL system.
NTSC	A television system promulgated by the National Television Systems Committee, which is adopted in the USA and some European countries
VGA	Video Graphics Array, normally VGA is used for computer monitors
PTZ	Pan/Tilt/Zoom, omni-directional movement of the pan/tilt/zoom (up/down/left/right), lens magnification, and focus control